Space and Missile Officer Development and Utilization:

Assessing 13S Officers' Assignments and Career Paths

*For 13S Space and Missile Development Team
Kickoff Meeting
August 13-14, 2003*

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Problem and Context

◆ The 13S career field was perceived to be unsustainable

  ▪ Shredded into numerous mission areas

  ▪ Missile jobs predominate at lower grades

  ▪ Many of its leaders come from outside the career field

  ▪ Top-level guidance for career development has been inconsistent

◆ Rumsfeld Space Commission said: "Space professionals need more depth of experience in their field … [and] specific criteria … for training, qualification and assignment"

◆ Meanwhile, USAF's Developing Aerospace Leaders (DAL) initiative sought broader, more integrative leaders

  ▪ With standards for functional certification

Elements of RAND's Approach

- Identified jobs' requirements for experience, education, and training *(the demand)*

- Described the extent of officers' development *(the supply)*

- Ascertained gaps between demand and supply

- Identified improved career paths

How We Identified Requirements for Experience, Education, and Training

◆ Used a standardized form to identify requirements:

- Operational experience
- Special experience (prefix)
- Functional experience
- Educational/training

- Command experience
- Organizational experience
- Grade level

◆ Colonels rated background criticality for two-thirds of 1,092 jobs authorized in 2001 for 13S O-4s, O-5s, and O-6s

- AFPC's assignment staff rated the other third

◆ A single expert panel scrubbed the ratings for consistency, accuracy

This is _not_ the approach we recommend

Aggregate Requirements Varied

e.g., prior experience as an OG/CC is important or critical for 24% of O-6 jobs

Percentages of jobs where individual requirements are important or critical

(jobs at end of FY2001)

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Operations	O-4	O-5	O-6
Satellite C2	13	11	20
Spacelift	5	5	6
Surveillance	3	5	4
Warning	3	5	1
Missile	25	17	20
Any space (not missile)	5	5	24
Any space or missile	18	16	20
Total	92	90	100
AFS prefix			
C = Commander	1	10	67
B = Squadron Ops Officer	2	22	31
K = Instructor	31	29	36
Q = Stan/Eval	30	29	34
R = Contingency/War Planner	10	10	20
S = Safety	3	3	7
T = Formal Training Instructor	6	4	7
V = Automated Fctnl Appl Anal	1	1	16
W = Weapons & Tactics Instr	13	6	6
X = Nonrated Aircrew	3	3	
Y = Analytic Studies Officer	2	3	2
Functional			
Personnel	1	3	2
Intelligence	2	5	10
Current Ops	29	36	70
Logistics	9	9	5
Plans & Programs	18	24	43
Communications	5	7	7
Requirements	11	15	35
R and D	5	10	17
Acquisition	10	19	29
Test & Evaluation	17	17	23
Contracting	2	3	8
Financial Management	3	7	9
Pol-Mil	7	5	8
Education/Training	2	5	8

Command	O-4	O-5	O-6
Flight	24	21	17
Squadron	3	11	64
Ops Group		1	24
Any Group		1	36
Wing		1	7
NAF			8
Center			4
Other	1	1	3
Organization			
Group	21	19	39
Wing	20	21	41
14th Air Force	9	11	18
20th Air Force	11	8	8
Other NAF	6	2	3
CAF	9	11	8
AFSPACE	20	42	64
AETC	4	9	3
Air Staff	15	25	52
AIA	5	3	1
NRO	10	15	20
JCS/OSD	10	15	17
DTRA	5	4	4
SMC	5	10	20
USSTRATCOM	9	9	6
USSPACECOM	11	22	17
AFTEC	3	3	2
SWC	3	6	9
Tech Education			
Engineering	8	5	14
Other Tech	4	5	7
Total	12	10	21

at least 25%

at least 20%

Raters Were Often Indifferent About the Operational Experience Needed

Percentage of 13s jobs

e.g.,
very specific prior operational experience is required for only 14% of O-5 jobs

O-4   O-5   O-6
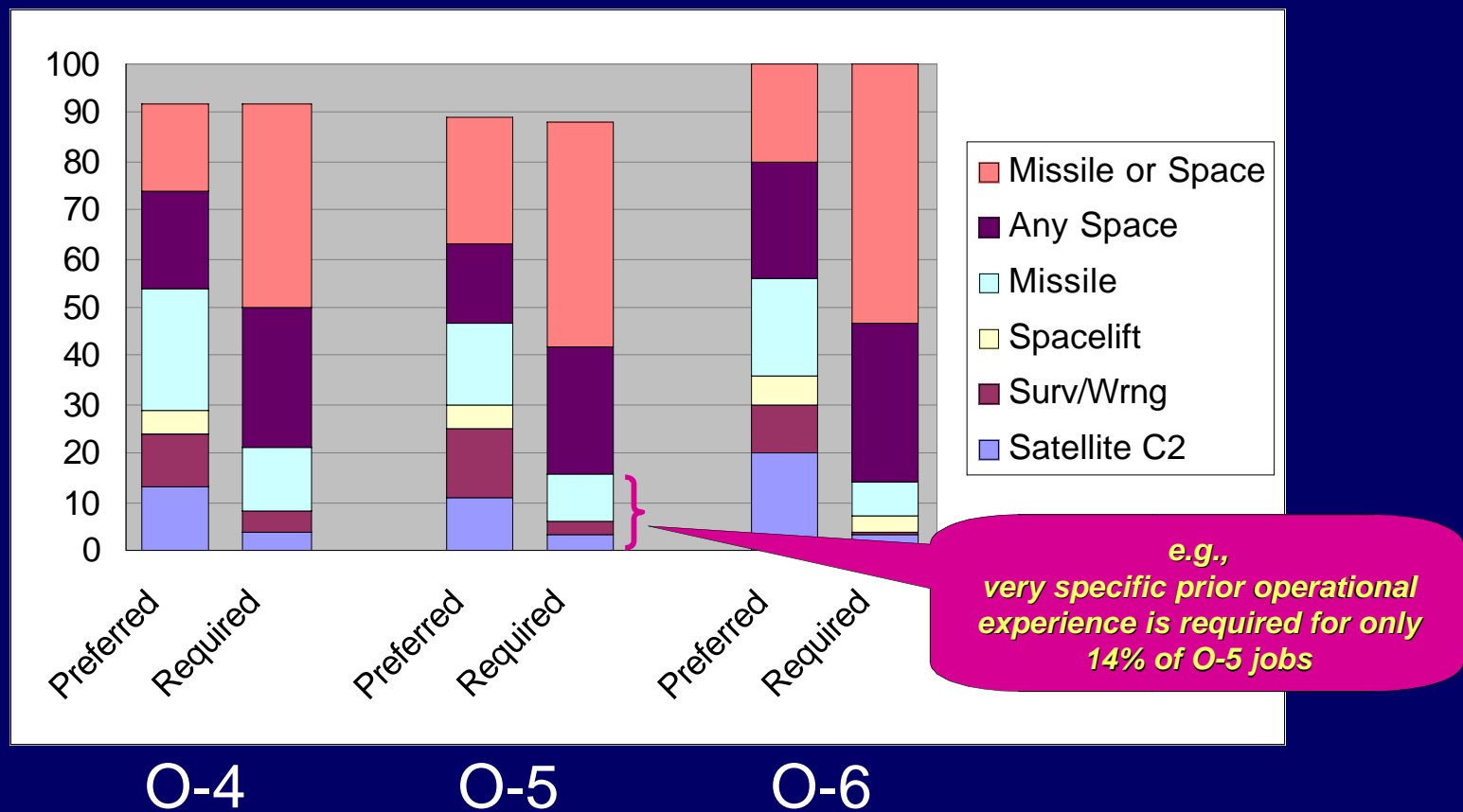
Groups of Jobs Have Similar Background Requirements – e.g., for O-6 Jobs:

	Technical education	AFSPC/DR	5	
18	Plans & programs	Space/Technology Office, Air Staff, Centers	11	Space
R&D, acq, rqmts, T&E, SMC, NRO, Air Staff	Instructor, Wg/CC	50SW, NRO	2	Satellite C2
		SWC, 45SW	5	Space
	Technical education, T&E, AFSPC, Air Staff, OJCS	OJCS, AFSPC/DO, 45SW, Battle Labs	6	Space
	Plans & programs Grp/CC	AFSPC/XP, Readiness Center	8	
63 **32**	Grp/CC	50SW/CC, AFSPC	4	Satellite C2
Current operations, grp/wing, SQ/CC		30SW/CC, 30OG/CC, AFSPC	5	Spacelift
AFSPC, Air Staff	Instructor	21SW/CC, 21OG/CC	4	Surv/Wrng
		14AF	5	Space
	Grp/CC	Missile Wg/CCs, OG/CCs	10	Missile
26		20AF, DTRA, DOE, OJCS	8	
	AFSPC	AFSPC cmd (FAC 1010)	8	
	Contingency/war planner	USSPACECOM	6	Satellite C2

> *e.g., O-6 jobs requiring experience in satellite C2 and prefix R tended to be in USSPACECOM*

… and Similarly for O-5 Jobs

Technical education, NRO, SMC

AFSPC/DR, AF/XP, AF/XO, AFTEC	20	
AF/XP, AFXO	23	
Space group/wing	5	Satellite C2
USSTRATCOM	12	Missile

60 — Cur ops, plans & prgrms, acq, rqmts, T&E, AFSPC, Air Staff

40 — Unified cmd

OJCS
Ed & trng, Sq/CC
War planner, flight cmdr

Rqmts, acq

USSPACECOM, 50SW/CC, 50OG	5	
SQ/CCs in 14AF	6	Satellite C2
AFSPC/DO	8	
20AF OG/CC	12	Missile
14AF, AFSPC/XP	9	
SWC	11	
AFSPC, OSD, OJCS, SQ/CCs in 14AF	24	

Flight cmdr, grp/wg expr
Ops Offcr
Sq/CC

31

75 — AFSPC, instructor, current operations

War planner
Technical education
Air Staff

54 — AFSPC

14AF wg/sqdrn, Air Staff	16	Satellite C2
14AF ops offcers, OJCS	28	Surv/Wrng
AFTEC	10	

12 — NRO

Air Staff (space technology, architecture)	12	

154 — Some mission experience

Grps in 20AF, AF/XO, Unified cmds	36	Missile
USSPACECOM, OJCS	18	Surv/Wrng
20AF sqdrns, DTRA, USSPACECOM, 14AF, Rdnss Cntr, AFTEC, DTRA, AFSPC	100	

Requirements May Change in the Future

For example:

- ◆ Shifts to/from civilians, enlisted, guard/reserve
    - e.g., due to space weaponization or civilianization of support activities
- ◆ Scope: depth vs breadth
    - Including specialized tracks: missiles, space, acquisition
- ◆ Greater integration with air, land, sea operations

Elements of RAND's Approach

◆ Identified jobs' requirements for experience, education, and training *(the demand)*

◆ Described the extent of officers' development *(the supply)*

◆ Ascertained gaps between demand and supply

◆ Identified improved career paths

How We Identified Current Officers' Backgrounds

◆ Used AFPC historical records for 1975-2001

◆ Registered the supply of backgrounds in the same terms as demand:

- Operational experience
- Special experience (prefix)
- Functional experience
- Educational/training
- Command experience
- Organizational experience
- Grade level

◆ The data told about officer career development, the range of expertise available, and trends

LtCol Jeff Yuen, 13S SSS student at RAND, was _pivotal_ in this effort

Aggregate Supplies Varied

Percentages of officers with individual backgrounds

(officers at end of FY2001)

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e.g., 28% of O-6s had prior experience as an OG/CC

Operations	O-4	O-5	O-6
Satellite C2	42	24	20
Spacelift	18	15	21
Surveillance	12	11	13
Warning	20	6	13
Missile	70	71	80
Surveillance & Warning	12	22	37
Any space	71	55	54
AFS prefix			
C = Commander	5	40	81
B = Squadron Ops Officer	10	38	31
K = Instructor	53	48	48
Q = Stan/Eval	40	41	34
R = Contingency/War Planner	7	9	8
S = Safety	1	3	2
T = Formal Training Instructor	25	23	16
V = Automated Fctnl Appl Anal	3	5	11
W = Weapons & Tactics Instr	6	2	6
X = Nonrated Aircrew	4	12	13
Y = Analytic Studies Officer	1	2	6
Functional			
Personnel	6	10	10
Intelligence	8	7	10
Current Ops	85	96	97
Logistics	35	35	35
Plans & Programs	28	51	71
Communications	11	12	9
Requirements	23	24	22
R and D	10	9	8
Acquisition	16	18	24
Test & Evaluation	16	17	10
Contracting	1		8
Financial Management			
Pol-Mil	5	16	25
Education/Training	52	60	57

Command	O-4	O-5	O-6
Flight		1	1
Squadron	6	39	80
Ops Group		3	28
Any Group		5	47
Wing			14
NAF & Joint		3	8
Center		2	1
Other	1		2
Organization			
Group	33	33	65
Wing	52	74	81
14th Air Force	6	5	5
20th Air Force	6	10	6
Other NAF	1	6	3
CAF	26	29	25
AFSPACE	33	40	45
AETC	42	41	40
Air Staff	11	29	45
AIA	5	4	7
NRO	8	5	10
JCS/OSD	5	18	39
DTRA	3	5	4
SMC	8	10	16
USSTRATCOM	12	22	11
USSPACECOM	14	20	21
AFTEC	4	4	2
SWC	7	2	3
Tech Education			
Engineering	26	12	6
Other Tech	29	30	25
Total	55	42	30

at least 25%

at least 20%

Operational Experience Varied ... and Was Often Short

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13, as of 8/9/03
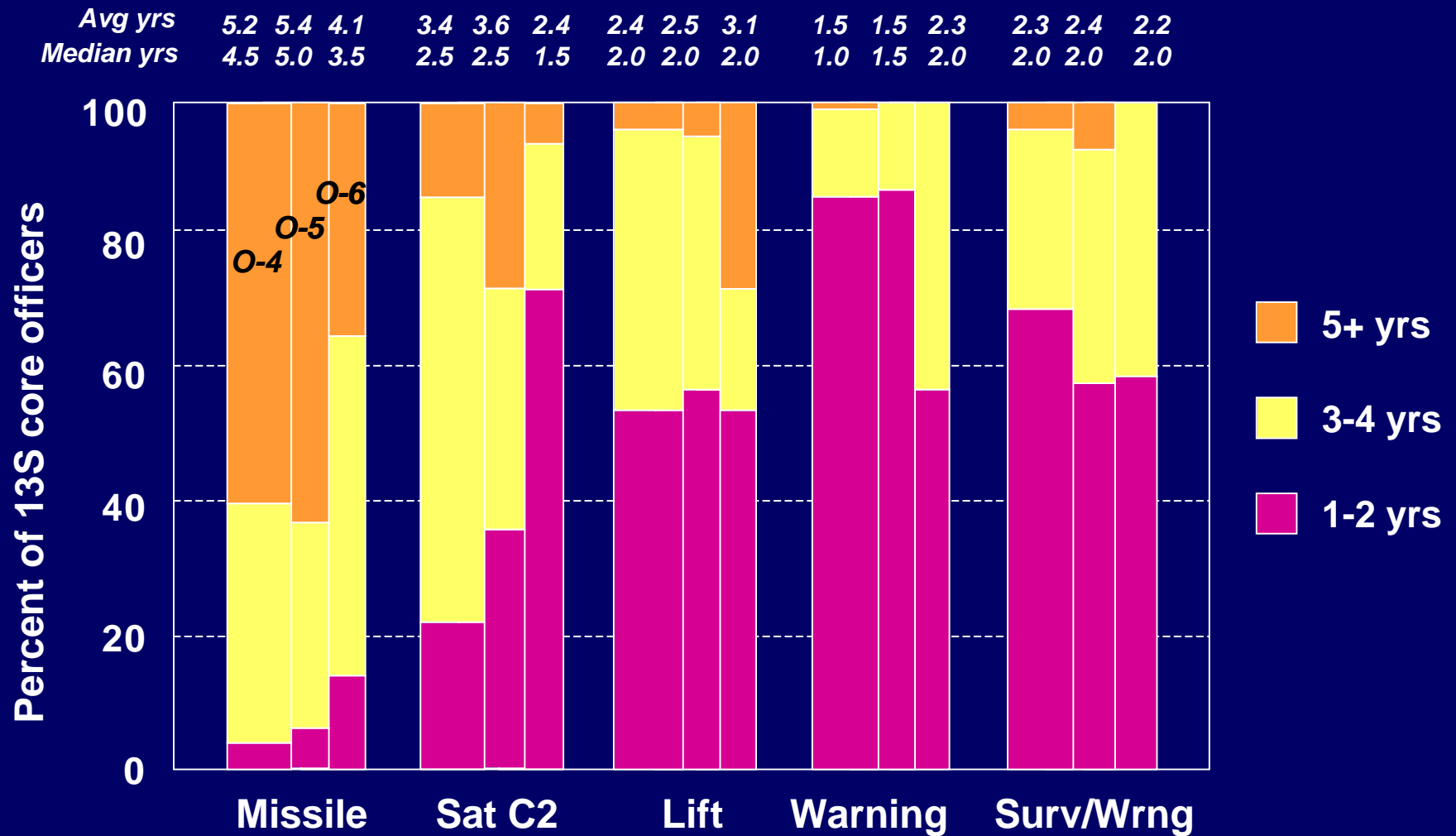
After Four Years at O-6, 13S Core Officers Averaged Nine Years of Mission Experience

Total years of mission experience (y-axis, 0 to 10)

Categories: O-2, O-3, O-4, O-5, O-6

(mission experience accumulated before promotion to next grade)
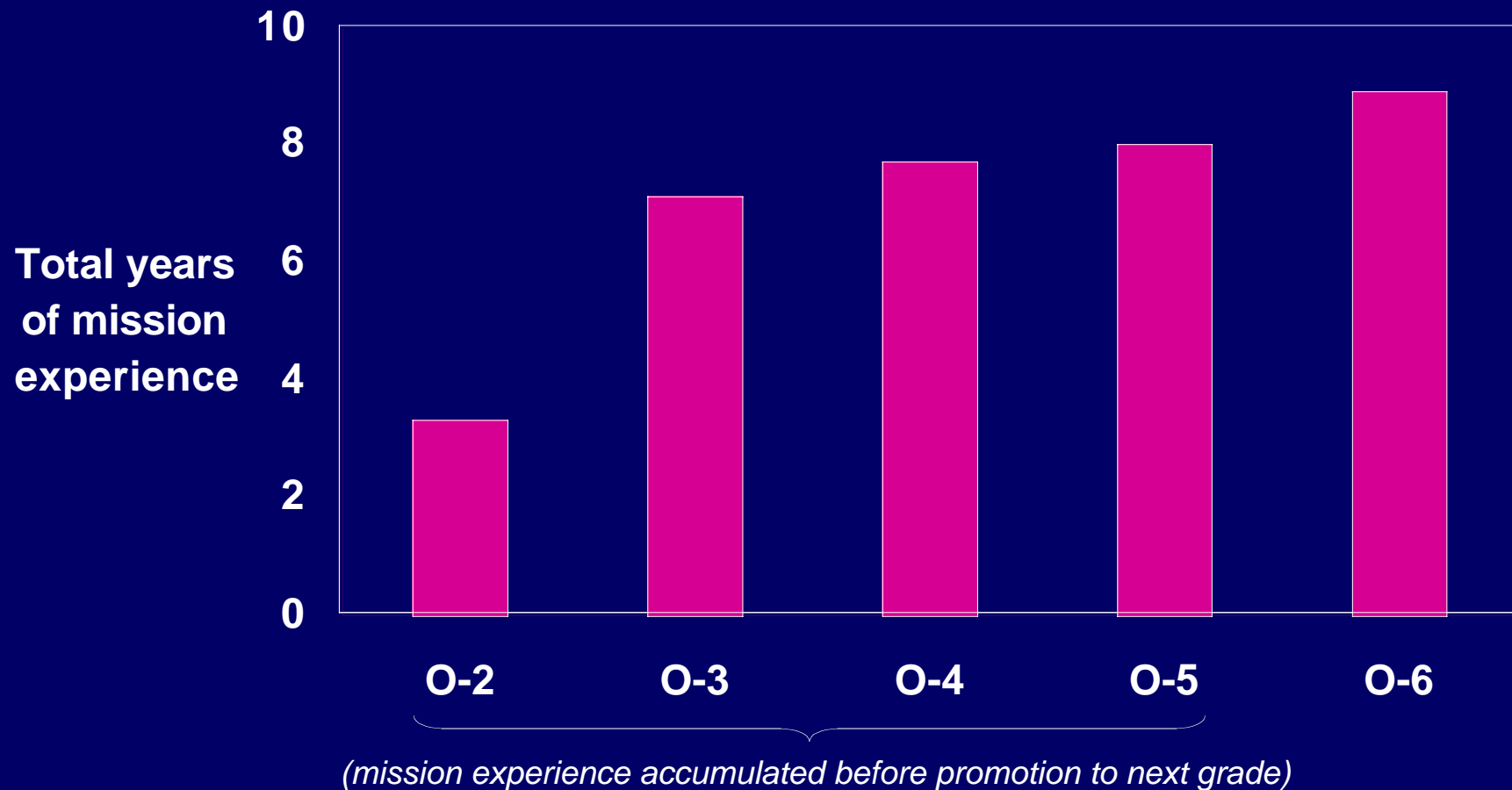
Groups of Officers Developed Similar Backgrounds – e.g., for O-6s in 2001:

e.g., upon promotion to O-6, 15 core 13S colonels had these sets of experiences

Acquisition, SMC
28

NRO — 11

Technical education, plans & prgrms
Air Staff, Sq/CC, warning or satC2 — 17

OJCS/OSD — 15

Missile,
k or q prefix,
plans & prgrms
122

Current operations,
grp/wing, MAJCOM
156

Pol-mil, ed & trng, Air staff — 11

Instructor — 19

OJCS/OSD
61

Grp/CC
31

Surveillance & warning — 12

Ed & trng, Air Staff — 19

107
Sq/CC

46
Unified cmd

Air Staff — 27

Surveillance & warning, ed & trng — 19

Missile & spacelift, non-rated aircrew — 6

(Backgrounds accumulated before promotion to O-6)

… and Similarly for O-5s:

OJCS/OSD 13

Spacelift, non-rated aircrew 6

Missile, k or q prefix,
plans & programs
128

Surveillance & warning, ed & trng 19

Air Staff 27

Unified cmd
46

Instructor (t), ed & trng 19

Sq/CC
113

Ed & trng, Air Staff 19

Grp/cc
31

Surveillance & warning 12

OJCS/OSD
42

Current operations,
grp/wing, MAJCOM
156

Pol-mil, ed & trng, Air Staff 11

Surveillance, NRO 11

Space, acquisition,
SMC
28

Satellite C2 or warning, plans & prgrms, Air Staff, Sq/CC, tech edu 17

Missile and Space Officers Exhibited Few Differences

◆ Promotion rates did not differ between officers with missile or space officers

◆ Officers with missile experience were rarely assigned to NRO, SMC, or the battle labs

◆ Officers with missile *and* space experience averaged two more years in mission operations and one more year in unified organizations

…and they spent less time in NAFs, OJCS/OSD, and command

Elements of RAND's Approach

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Some Experiences Were In Short Supply <u>Individually</u> (in aggregate)

e.g.,
29% of O-6 jobs needed prior acquisition experience, but only 24% of 2001's colonels brought that experience to their current jobs

Percentages of jobs	O-4		O-5		O-6	
	Rqmt	Short	Rqmt	Short	Rqmt	Short
AFS Prefix						
R = war planner	10	-4	10	-2	20	-14
S = safety	3	-2	3	-1	7	-5
W = weapons & tactics	13	-8	6	-4	6	-6
Functional Area						
Requirements	11	+12	15	+9	35	-15
R&D	5	+5	10	-2	17	-11
Acquisition	10	+6	19	-2	29	-5
T&E	17	-2	17	-2	23	-13
Organization						
14AF	9	-4	11	-7	18	-14
20AF	11	-5	8	+2	8	-2
AFSPC	20	+13	42	-7	64	-26
Air Staff	15	-9	25	+4	52	-7
NRO	10	-3	15	-10	20	-10
SMC	5	+3	10	0	20	-4
SWC	3	+4	6	-4	9	-6
JCS/OSD	10	-7	15	-1	17	+1

Some Experiences Were In Short Supply in Combinations – e.g., for O-6s:

Common backgrounds	Additional backgrounds	Percentages	
		Rqmt	Short
Current ops, acquisition, rqmts SQ/CC, NRO or SMC, MAJCOM and/or higher HQ	Technical education	10	-5
	T&E	8	-6
	Wg/CC, satellite C2	2	-2
	Grp/CC	5	-3
Current ops, plans & programs, SQ/CC, higher HQ	NRO	2	+1
	none	9	+15
Current ops, SQ/CC, MAJCOM and/or higher HQ	Instructor, group/wing	10	+11
	Group/wing	9	+13
	Spacelift	6	+4
	Grp/CC, satellite C2	5	0
SQ/CC, NAF, MAJCOM, higher HQ, unified cmd, tech ed		6	-4
SQ/CC, missile	Instructor, current ops	7	+33
	Instructor, T&E, unified cmd	3	-1
	Grp/CC	10	+30
War planner, satellite C2	Miscellaneous	7	-6

e.g., 5% of O-6 jobs needed these experiences, but only 2% of 2001's colonels brought them to their current jobs

Mismatches Were *Dominant* at the Person-Job Level
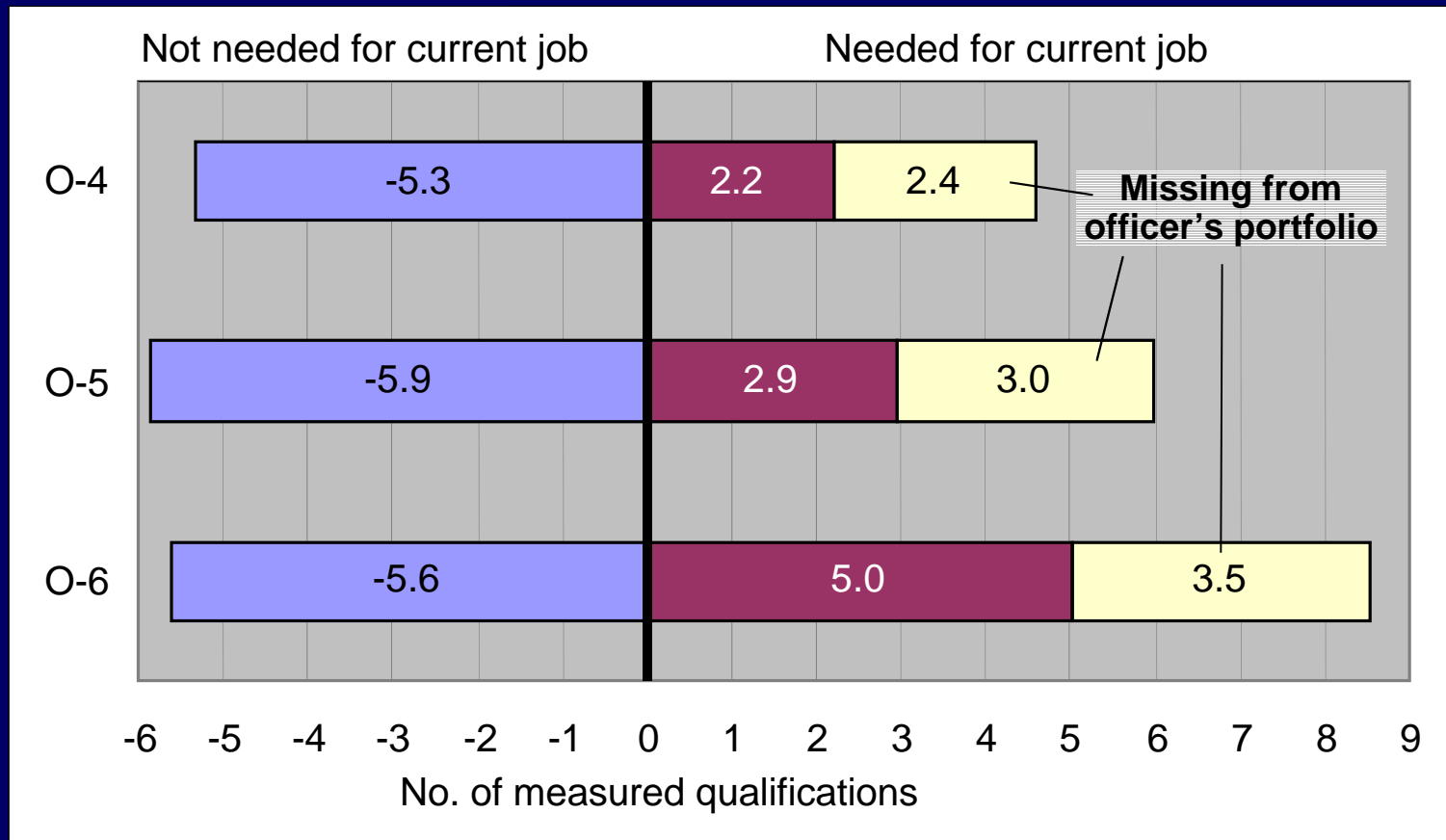
Averages per job or per officer

Although Technical Education Was Plentiful Among O-4s and O-5s…

Percentage of jobs or core officers

Legend:
- Comp sci & math
- Space ops
- Physical science
- Engineering

Supply

Demand

O-4   O-5   O-6
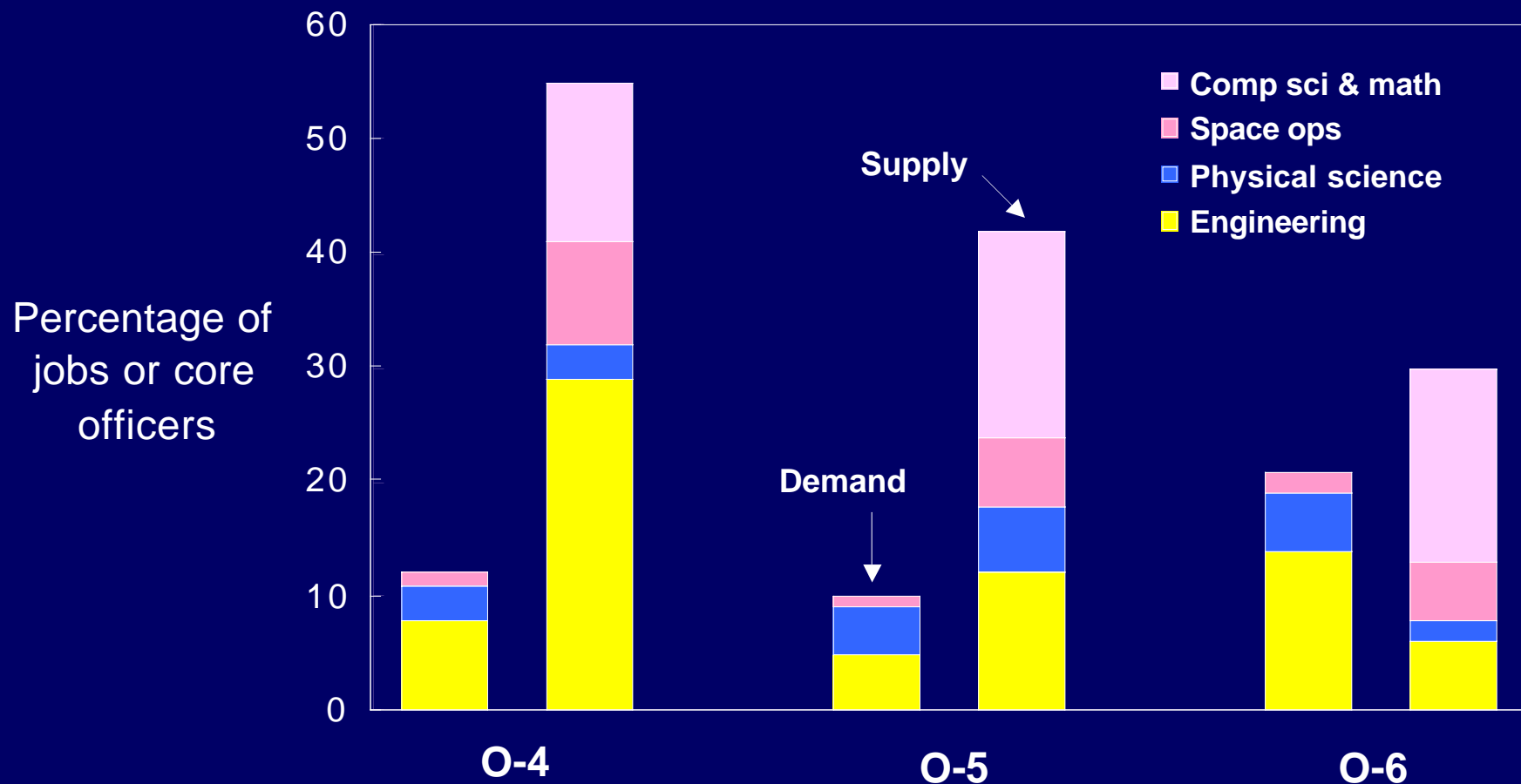
…Incumbents' Technical Education Frequently Fell Short
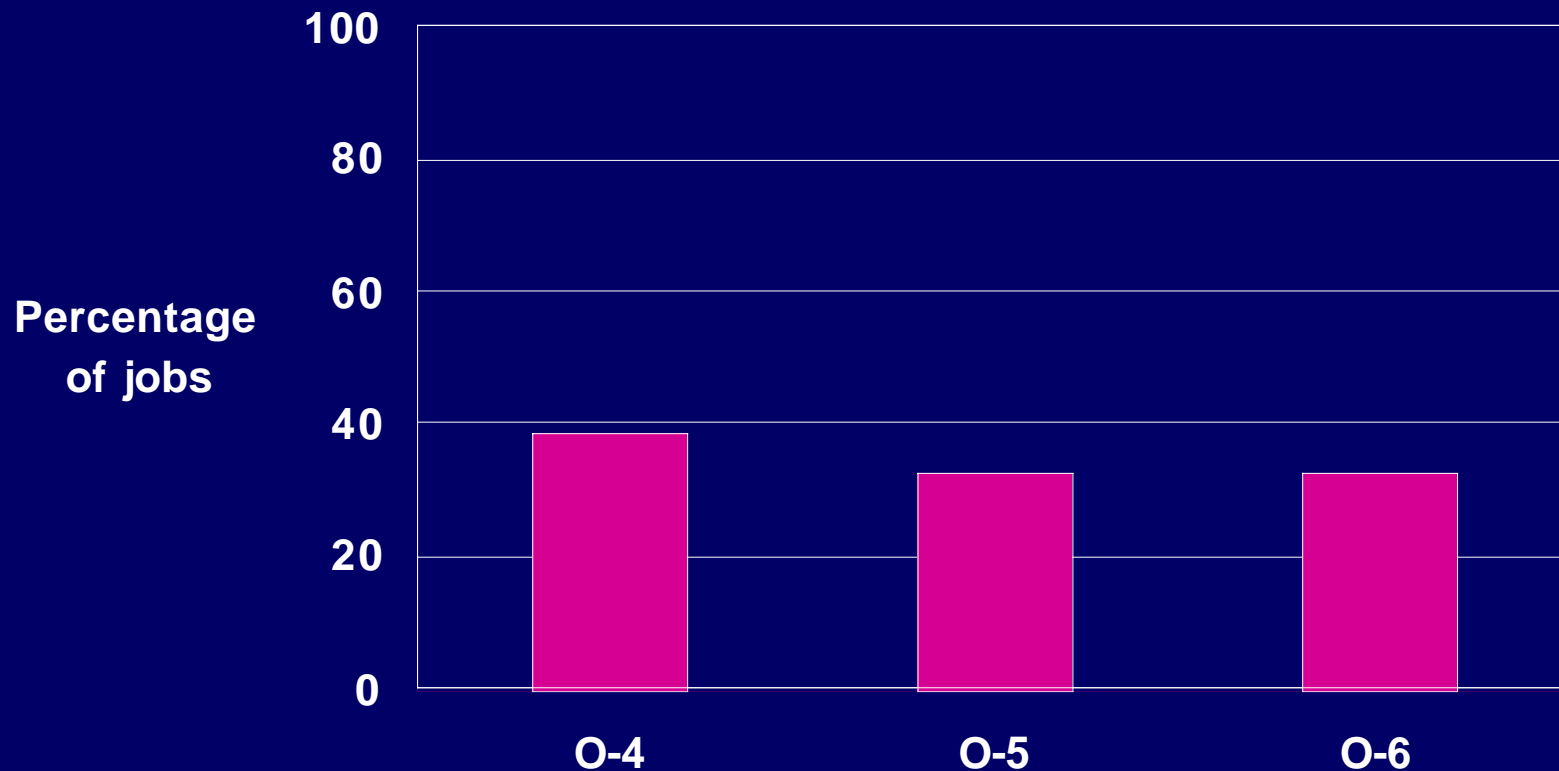
Percentage of jobs

(Percentage of jobs requiring a technical education whose incumbents had a technical education)

Elements of RAND's Approach

◆ Identified jobs' requirements for experience, education, and training *(the demand)*

◆ Described the extent of officers' development *(the supply)*

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Flow Modeling for Career-Path Analysis

Input

Job/position info
- Categories, counts
- Background rqmts
- Contributions

Personnel flow info
- Retention and promotion rates
- Timing

Mgt priorities—e.g.,
- Depth vs. breadth
- Grade/org/mission

Optimization

Simultaneously across career stages, select next jobs for officers with distinct combinations of experience
- Fill all jobs
- Maximize fulfillment of demand
- Observe specified priorities

(Steady-state flows)

e.g., specialized tracks, breadth vs depth

Output

Mixes of experience at each career stage

Options available as officers progress
- Based on background

Degrees of demand fulfillment and experience utilization
- Overages
- Shortfalls

The Initial Flow Model Reflected 12 <u>Categories</u> of Experience

Categories <u>selected by AFSPC</u>

◆ Operational mission
  - (1) missile, (2) space, (3) either

◆ Functional area
  - (4) acquisition, (5) requirements, (6) plans/programs, (7) communications/intelligence

◆ Organization
  - (8) group/wing (with K or Q prefix), (9) MAJCOM/Air Staff, (10) unified cmd/OJCS/OSD, (11) other

◆ Command (12)

> *Note: education and training not (yet) included*

FY2001's Person-Job Mismatches Persisted, Even With Categorization

Not needed for current job — Needed for current job

O-4	-3.9	1.8 · 1.7
O-5	-4.2	2.4 · 2.0
O-6	-3.7	3.6 · 1.6

Missing from officer's portfolio

-5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

No. of experience categories

Averages per job or per officer

But Optimized Patterns Would Greatly Reduce Mismatches

Not needed for current job | Needed for current job

| | FY2001 | -3.9 | 1.8 | 1.7 |
| O-4 | Case 2 | -1.8 | 3.5 | |

Missing from officer's portfolio

| | FY2001 | -4.2 | 2.4 | 2.0 |
| O-5 | Case 2 | -2.0 | 4.5 | |

| | FY2001 | -3.7 | 3.6 | 1.6 |
| O-6 | Case 2 | -1.9 | 5.3 | |

No. of experience categories
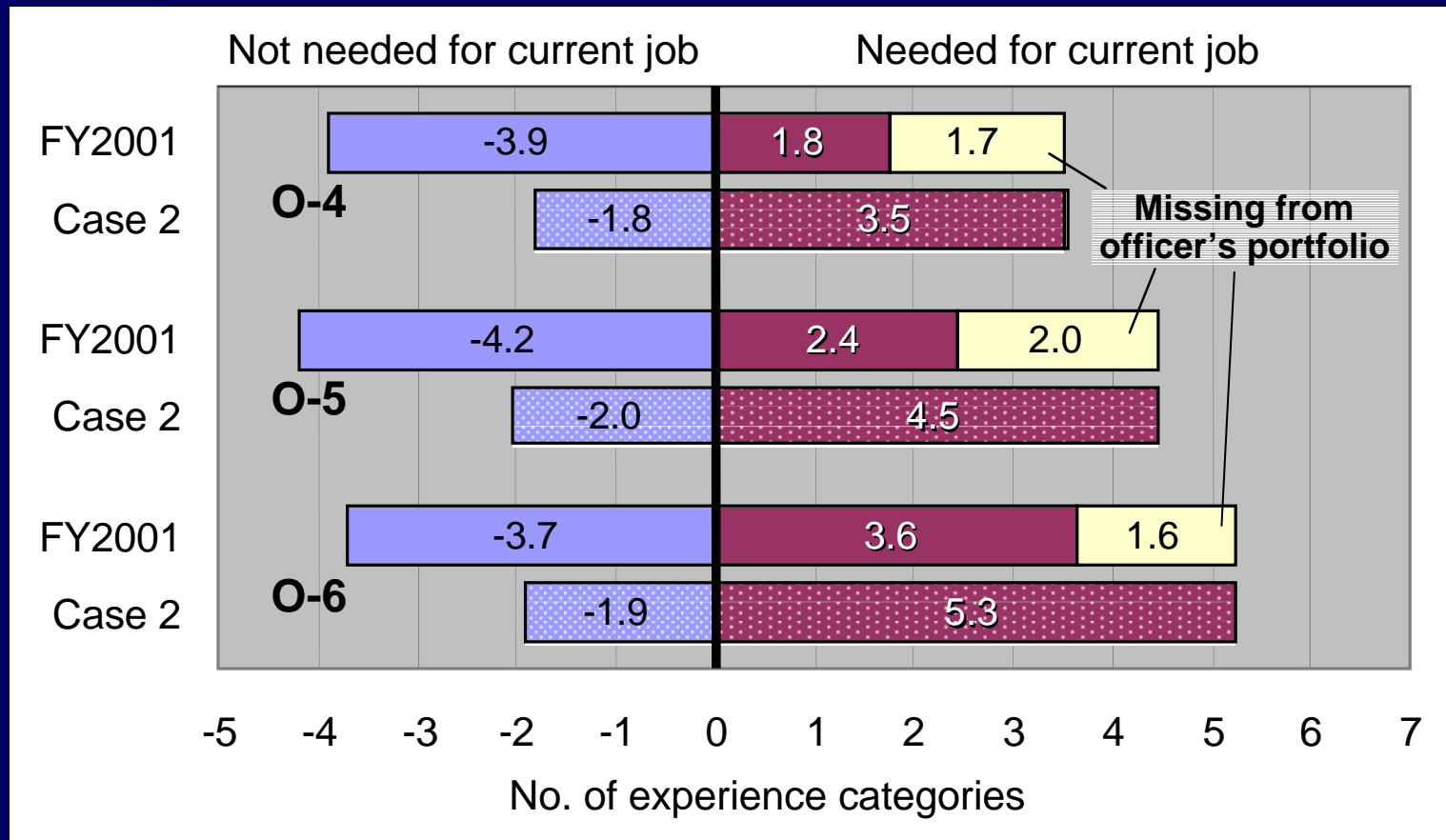
Averages per job or per officer

Five Illustrative Cases, for Comparison with FY2001's Officers

◆ Cases 1-3 used FY2001's jobs and experience rqmts

  ▪ <u>Case 1</u>: maximized fulfillment of requirements

  ▪ <u>Case 2</u>: also maximized (a) officers with acquisition plus either missile or space ops experience (one of three specialized "tracks") after four jobs and (b) depth

  ▪ <u>Case 3</u>: like Case 2, except maximized breadth instead of depth

◆ <u>Case 4</u> regarded prior experience in both acquisition and on a joint staff as important for command jobs

◆ <u>Case 5</u> changed the numbers of jobs

  ▪ Weaponization of space, plus civilianization of some support activities

Cases 4-5 used Case 2's goals

Five Illustrative Cases, for Comparison with FY2001's Officers

- Cases 1-3 used FY2001's jobs and experience rqmts
  - Ca... ents
  - Ca... cquisition plu... (one of thre... pth
  - Ca... eadth ins...
- Case... uisition and o... jobs
- Case 5 changed the numbers of jobs
  - Weaponization of space, plus civilianization of some support activities

In all optimized cases:
- *Incoming officers would meet more than 99% of the jobs' demands for prior experience*
  - *versus 54% in FY2001*
- *More than 96% of the incoming officers would bring all the prior experiences needed for their new jobs*
  - *versus 44% in FY2001*

Cases 4-5 used Case 2's goals

Optimal Cohort Development in These Cases

Line graphs will show how many officers at each grade would bring each experience category to their next job

Legend:
- missile
- space
- missile or space
- acquisition
- requirements
- plans, programs
- comm or intel
- (group or wing) + (K or Q)
- majcom, air staff
- unified cmd, ojcs, osd
- other staff
- command

X-axis: O-1/2, O-3, O-4, O-5, O-6
Y-axis: 0% to 100%
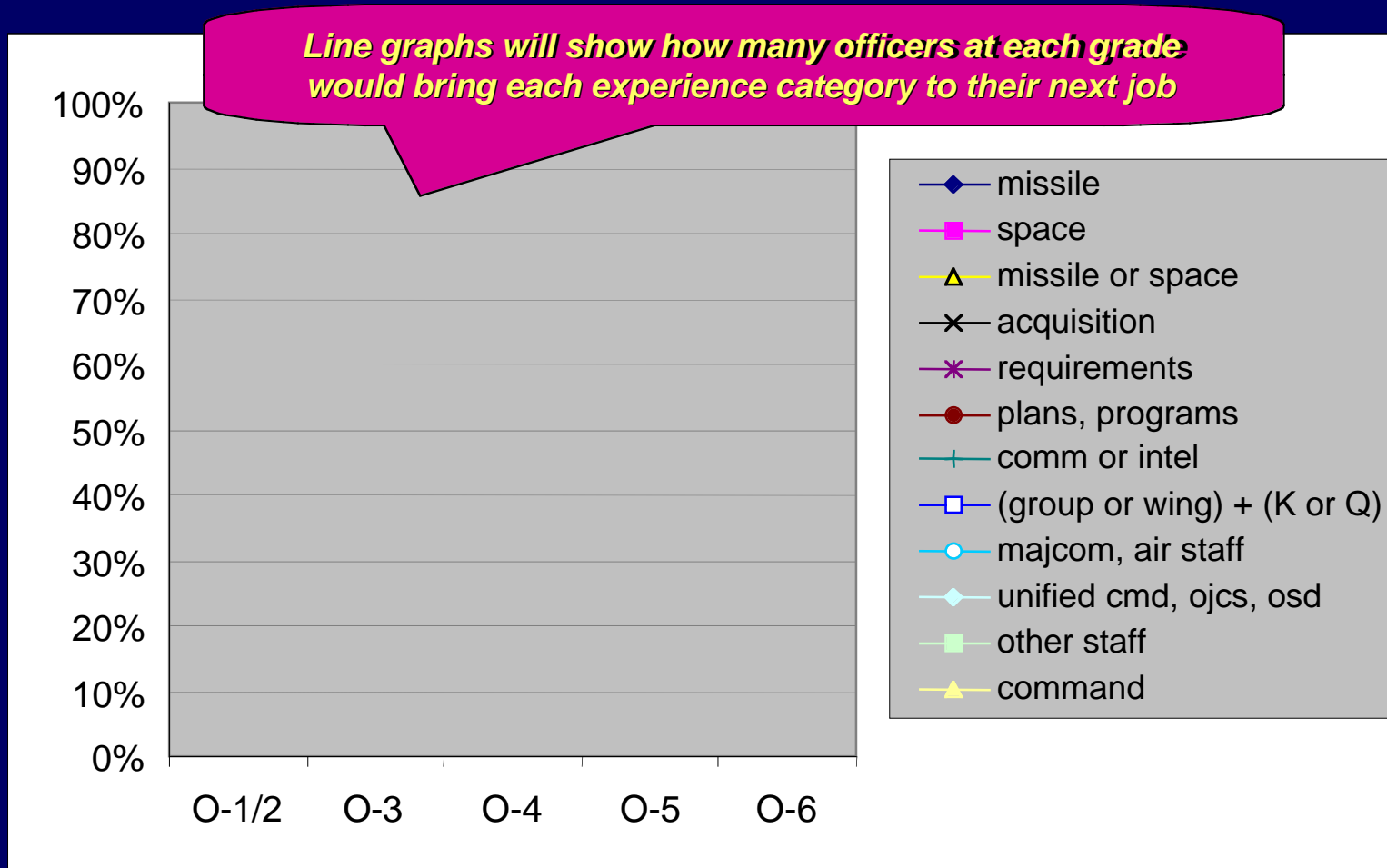
Optimal Cohort Development in These Cases *FY2001, for comparison (not optimal)*
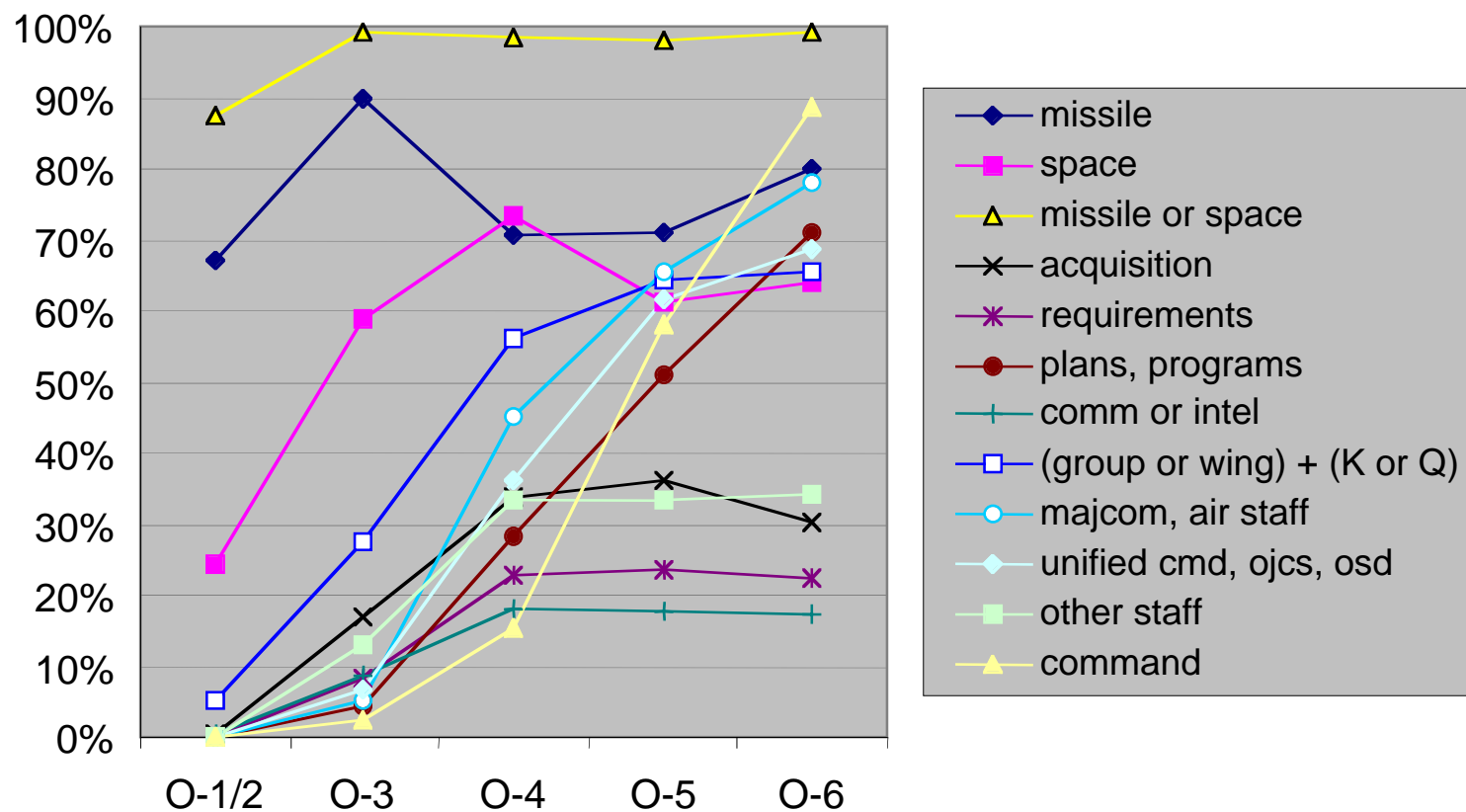
Optimal Cohort Development in These Cases

Case 3: max "tracks" by 5th job, and breadth
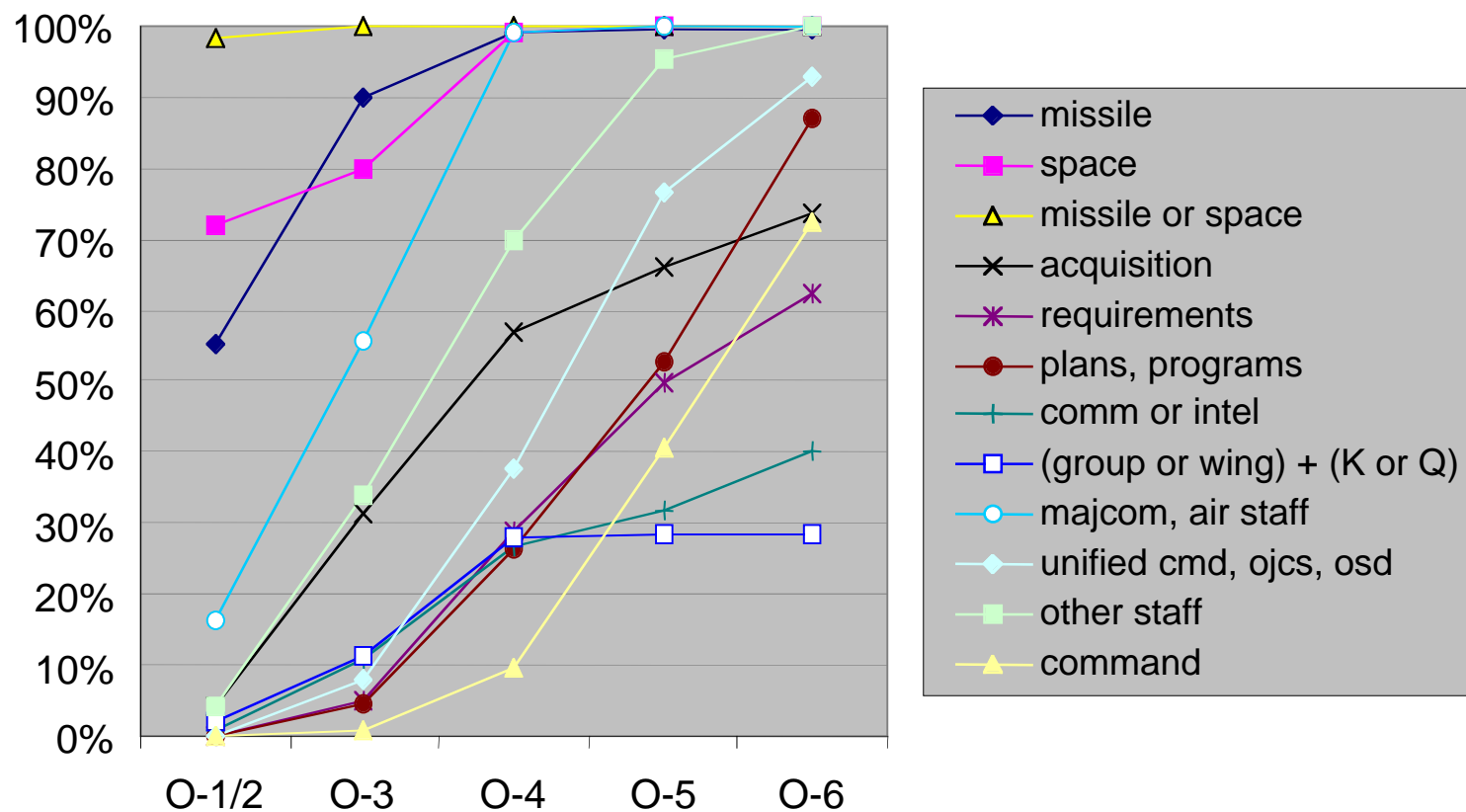
Optimal Cohort Development in These Cases

Case 1: maximize fulfillment of rqmts

Legend:
- missile
- space
- missile or space
- acquisition
- requirements
- plans, programs
- comm or intel
- (group or wing) + (K or Q)
- majcom, air staff
- unified cmd, ojcs, osd
- other staff
- command
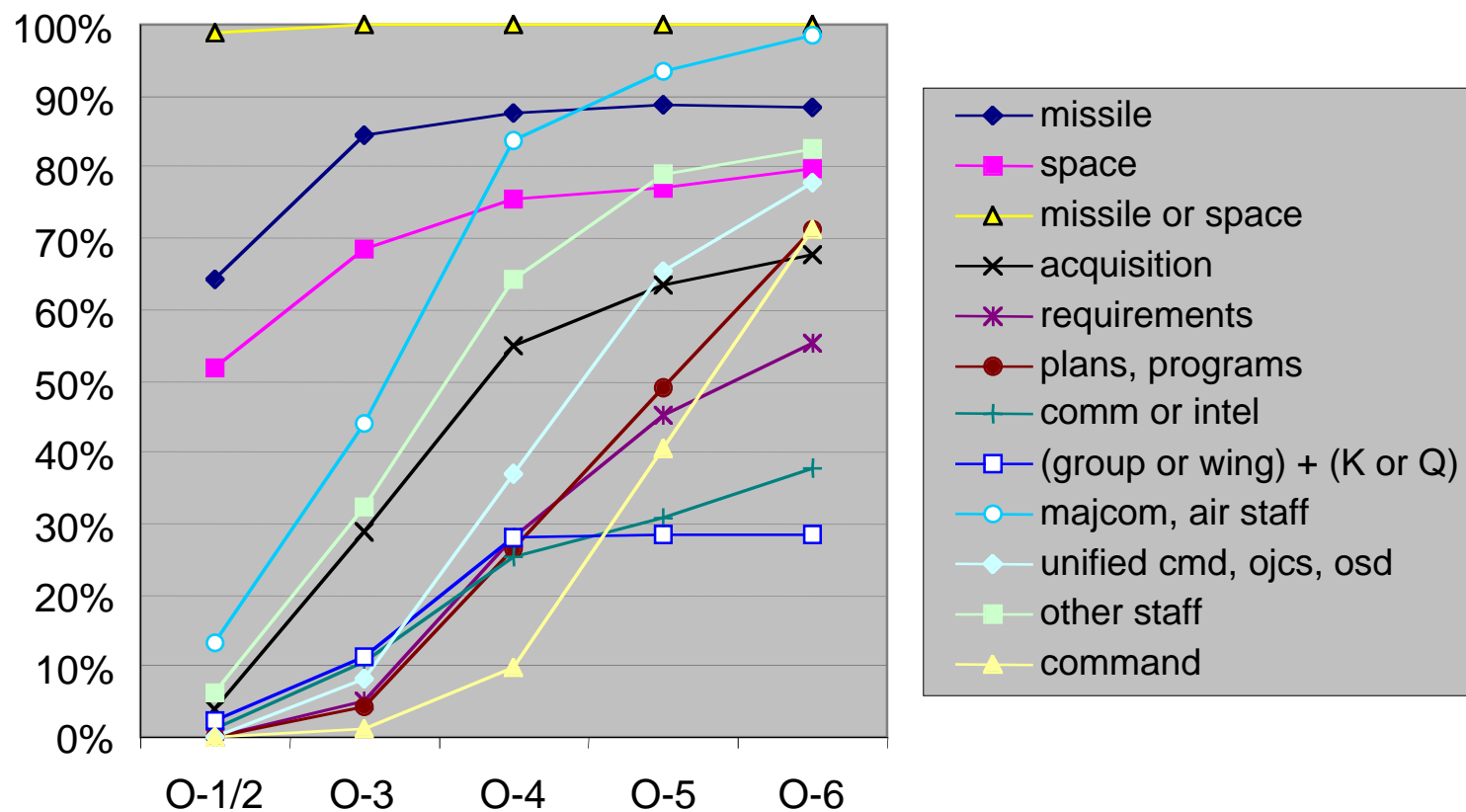
Optimal Cohort Development in These Cases

Case 2: max "tracks" by 5th job, and depth
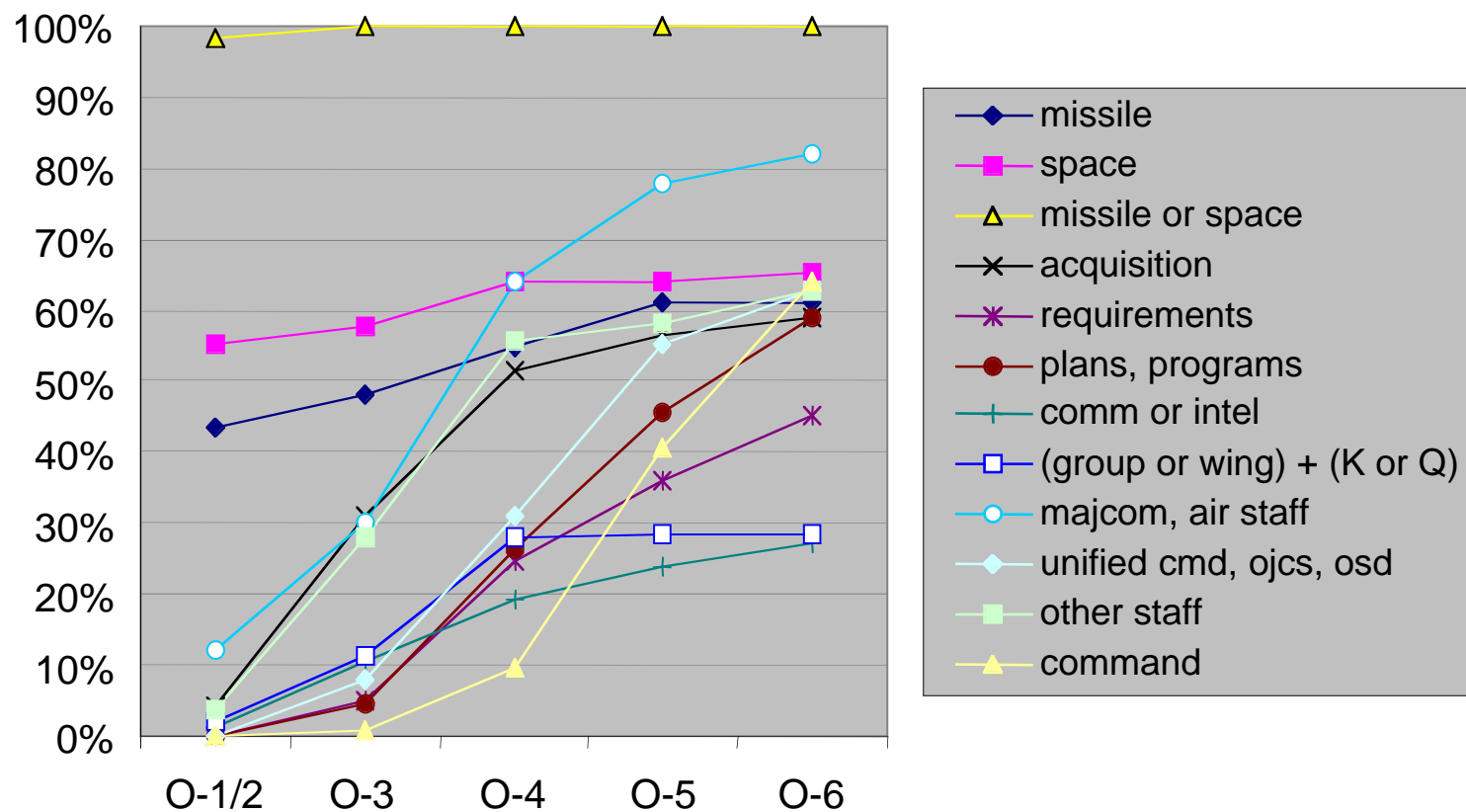
Optimal Cohort Development in These Cases

Case 4: acq and joint expr rqd for cmd jobs
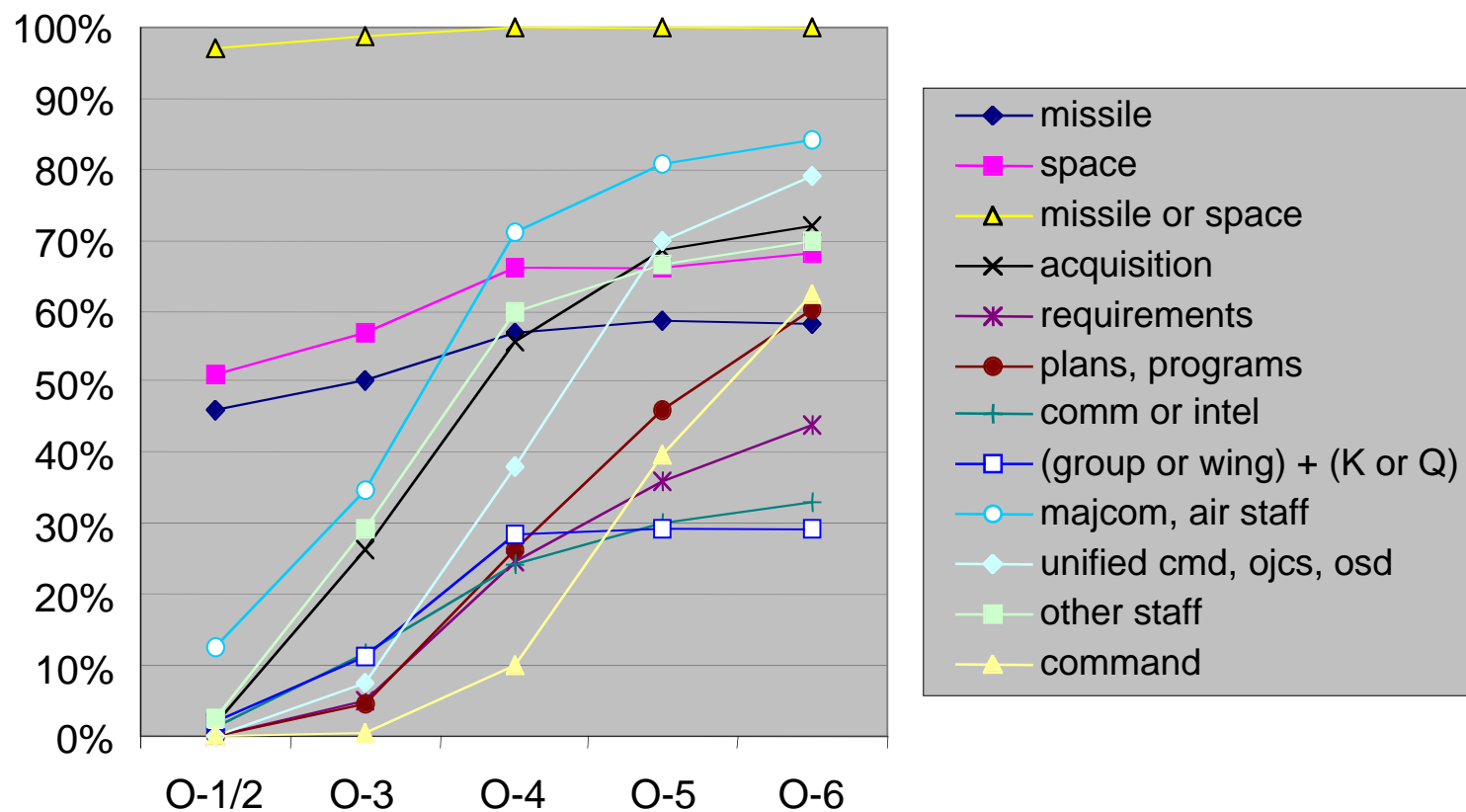
Optimal Cohort Development in These Cases
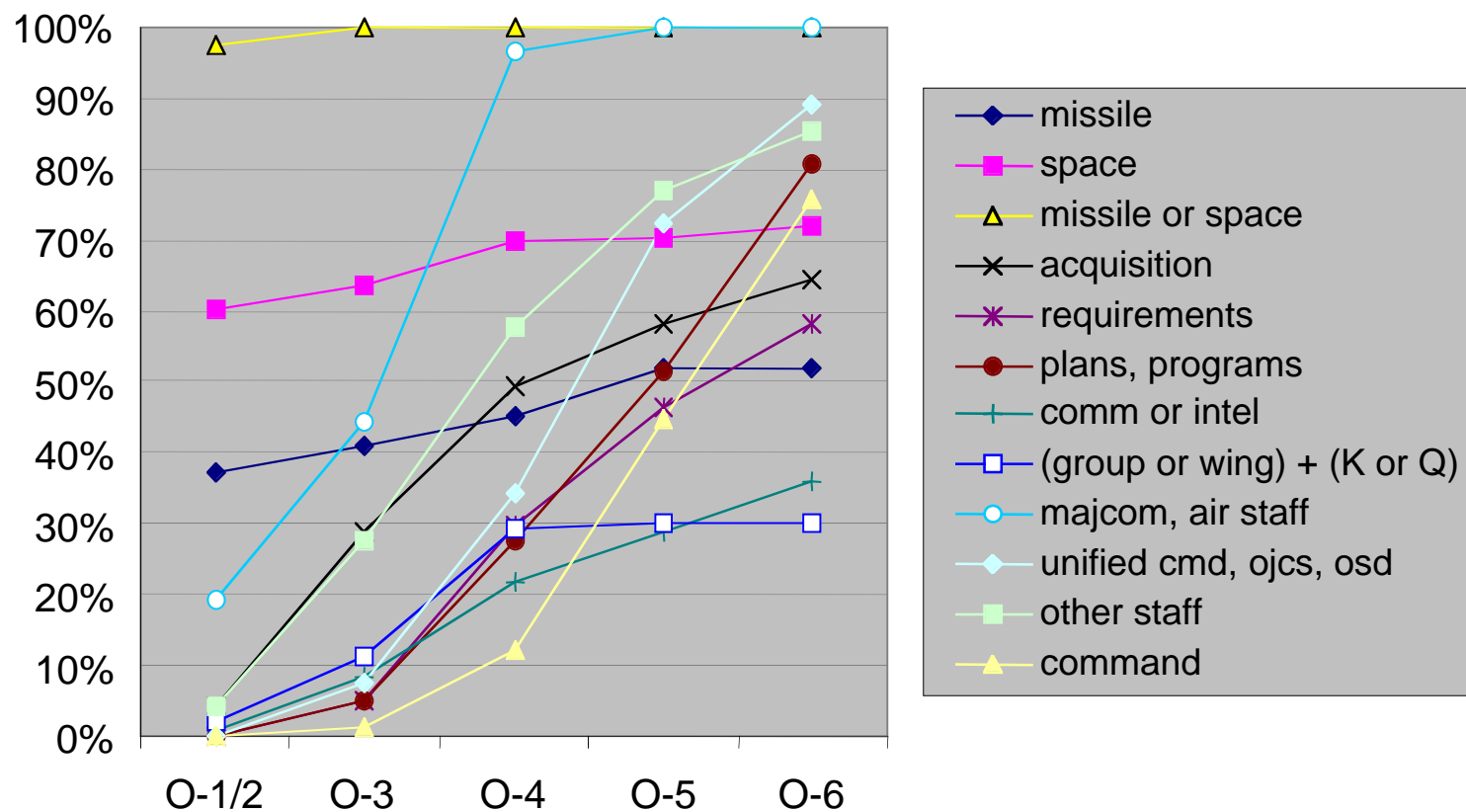
Case 5: weaponization, civilianization

Legend:
- missile
- space
- missile or space
- acquisition
- requirements
- plans, programs
- comm or intel
- (group or wing) + (K or Q)
- majcom, air staff
- unified cmd, ojcs, osd
- other staff
- command

Optimal "Big-Three" Backgrounds in These Cases

(missile, space, acquisition)

Stacked bar graphs will show how many officers at each grade would bring each of eight combinations of mission experience to their next job

Legend:
- none of the three
- all three
- missile and space
- space and acquisition
- missile and acquisition
- acquisition only
- space only
- missile only

X-axis: O-1/2, O-3, O-4, O-5, O-6
Y-axis: 0% to 100%

(missile, space, acquisition)

Optimal "Big-Three" Backgrounds in These Cases   *FY2001, for comparison (not optimal)*

Legend:
- none of the three
- all three
- missile and space
- space and acquisition
- missile and acquisition
- acquisition only
- space only
- missile only

Categories: O-1/2, O-3, O-4, O-5, O-6

Optimal "Big-Three" Backgrounds in These Cases
(missile, space, acquisition)
Case 3: max "tracks" by 5th job, and breadth

Optimal "Big-Three" Backgrounds in These Cases

(missile, space, acquisition)

Case 1: maximize fulfillment of rqmts

Legend:
- none of the three
- all three
- missile and space
- space and acquisition
- missile and acquisition
- acquisition only
- space only
- missile only

Categories: O-1/2, O-3, O-4, O-5, O-6

Optimal "Big-Three" Backgrounds in These Cases
(missile, space, acquisition)
Case 2: max "tracks" by 5th job, and depth

Optimal "Big-Three" Backgrounds in These Cases

(missile, space, acquisition)

Case 4: acq and joint expr rqd for cmd jobs

(missile, space, acquisition)

Optimal "Big-Three" Backgrounds in These Cases

Case 5: weaponization, civilianization

Legend:
- none of the three
- all three
- missile and space
- space and acquisition
- missile and acquisition
- acquisition only
- space only
- missile only

X-axis: O-1/2, O-3, O-4, O-5, O-6
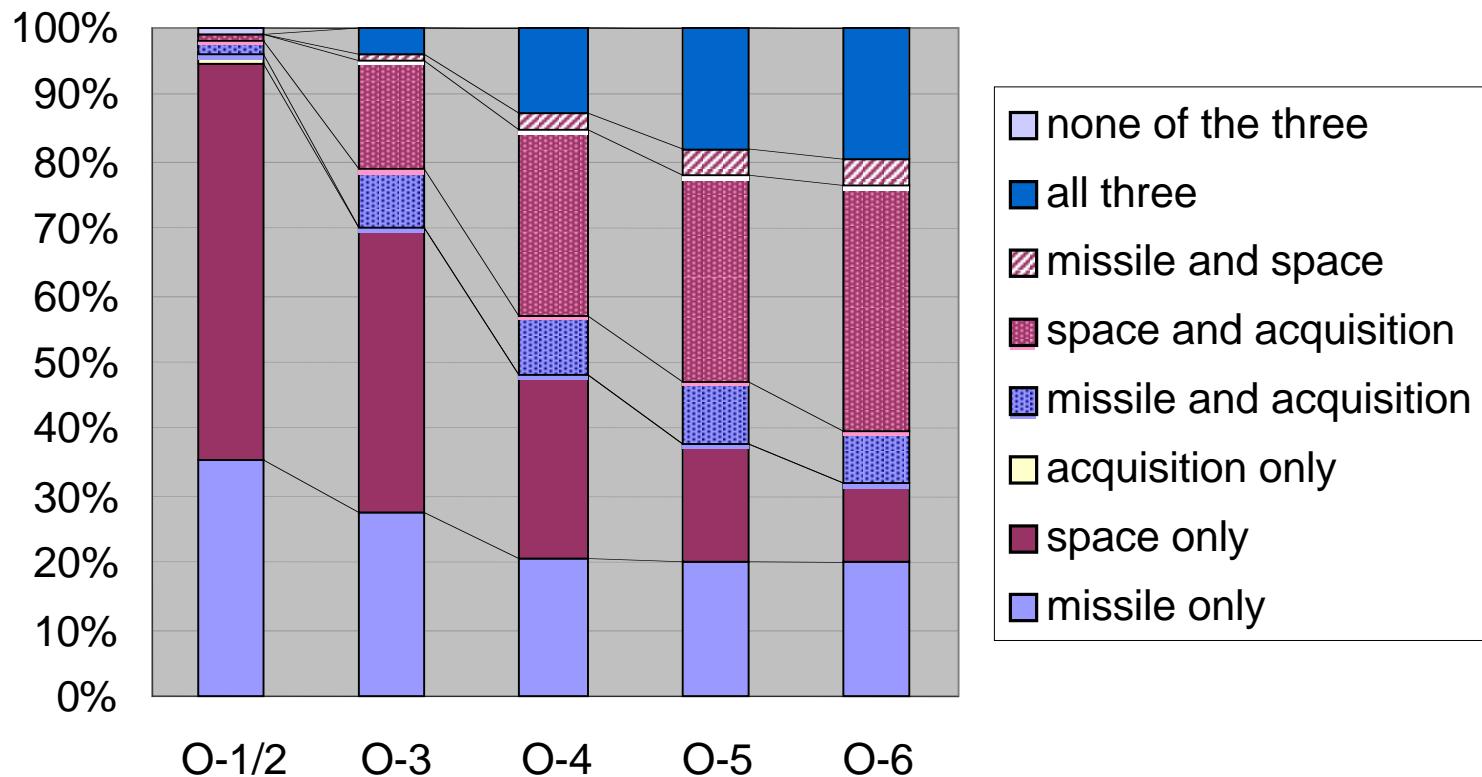
Summary for <u>Case 2</u>: Maximized Fulfillment of Requirements, Number on "Tracks" by Fifth Job, and Depth

Compared with FY2001's officers:

◆ Officers would have greater depth (more time) in most categories where they had experience

- ▪ Experience would be somewhat narrower at each grade

◆ Assignees would meet "all" demands for prior experience

- ▪ In rare instances one experience would be lacking

◆ Utilization of prior experiences would be much higher

Broad Conclusions

◆ Jobs' requirements and officers' qualifications can be identified (creating demand and supply databases)

◆ Today: many requirements go unmet, and many experiences go unused

◆ Sustainable development and utilization patterns could markedly improve the demand/supply match (via career paths)

- With room for policy options and individual preferences (including broadening outside 13S)

- Pattern adjustments could accommodate changes in requirements

Some Ways the 13S Development Team Could Exploit This Research

◆ Extend and refine the demand and supply databases

  ▪ e.g., include broadening positions inside/outside of 13S

◆ Choose a case and create corresponding career guidance, assignment guidelines, and assessment measures (not recommended)

◆ Refine the career-path results

  ▪ Develop demand data for additional jobs

  ▪ Evaluate/compare additional alternative policies

  ▪ <u>Then</u> create career guidance, assignment guidelines, and assessment measures

◆ Expand to address additional space professionals

  ▪ Include related career fields, enlisted personnel, civilians

End

For the full draft report that documents this research, see

Improving the Development and Utilization of Air Force Space and Missile Officers

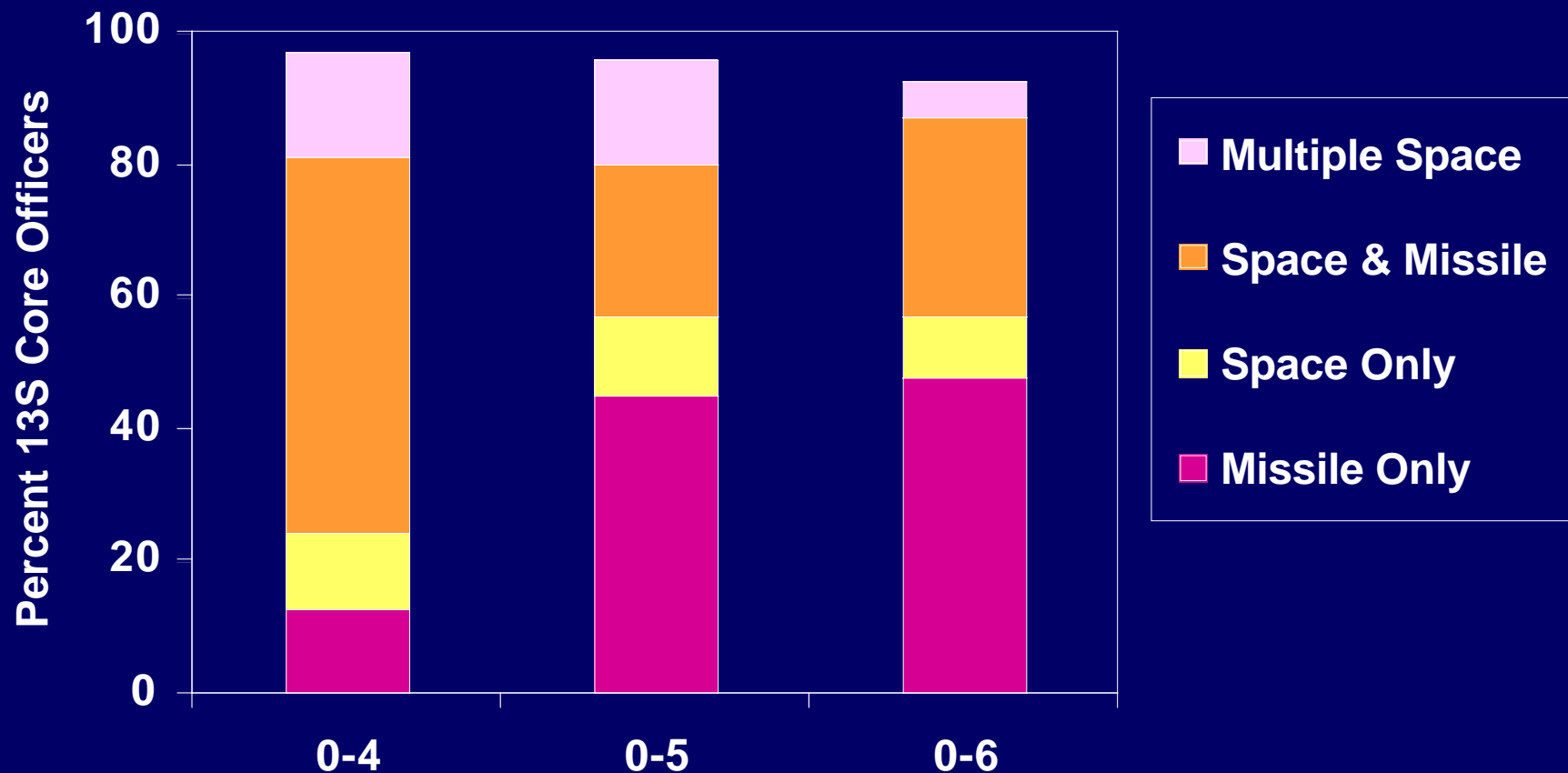by Georges Vernez, Craig Moore, Steven Martino, and LtCol Jeffrey Yuen
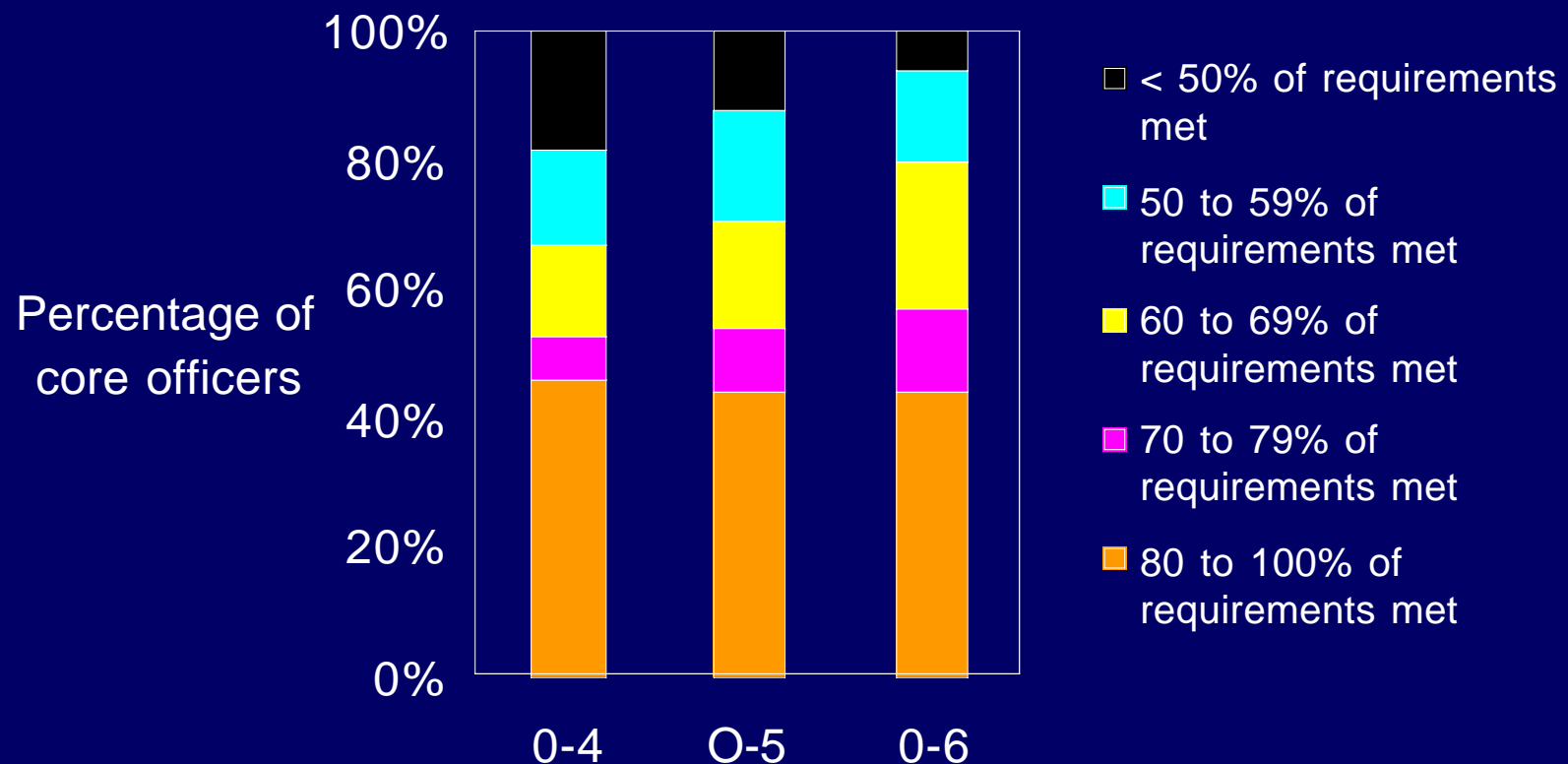
RAND Corporation

May 2003

DRR-2964-1-AF

Backup slides

13S Core Officers Increasingly Acquired Experience in Multiple Mission Areas

Gaps Between Incumbents' Experience and Job's Requirements Were Substantial

Percentage of core officers

- □ < 50% of requirements met
- ■ 50 to 59% of requirements met
- ■ 60 to 69% of requirements met
- ■ 70 to 79% of requirements met
- ■ 80 to 100% of requirements met

X-axis: 0-4, O-5, 0-6

Goals in Improving Career Paths

◆ Match officers' experiences and jobs' requirements
- Utilize specific experience, education, and training
- Develop background for more demanding jobs

◆ Provide flexibility for officers and the Air Force
- Preserve choice of paths as careers progress
- Maintain pools of officers qualified for assignment

◆ Provide stability/sustainability
- Retention and promotion rates, career sequences

◆ Make career guidance understandable
- Clarify objectives and paths

More Questions You Can Address Using Flow Analysis

◆ Which experiences/areas might benefit from …

  ▪ more/less use of enlisteds, civilians, contractors?

  ▪ longer/shorter tours?

  ▪ focused education/training because OJT opportunities are lacking?

◆ What if …

  ▪ the numbers and mix of jobs changed?

  ▪ jobs' requirements changed?

 ▪ developmental priorities changed?

Simplifications Used in Flow Modeling

- ◆ Repeat flows and assignment patterns year after year (steady state)
- ◆ Divide "full" career into 13 jobs
  - ▪ 2 at Lt;   3 each at Cpt, Maj, LtCol;   2 at Col
- ◆ Use same retention rates regardless of career path
  - ▪ Realistic rates dictate that Lt fill many Cpt jobs
- ◆ Measure prior experience as yes or no, reflecting neither recency nor cumulative duration
- ◆ Earn 3 points if meet a job's critical requirement, 2 if important, 1 if useful
- ◆ Collapse experiences into 12 categories

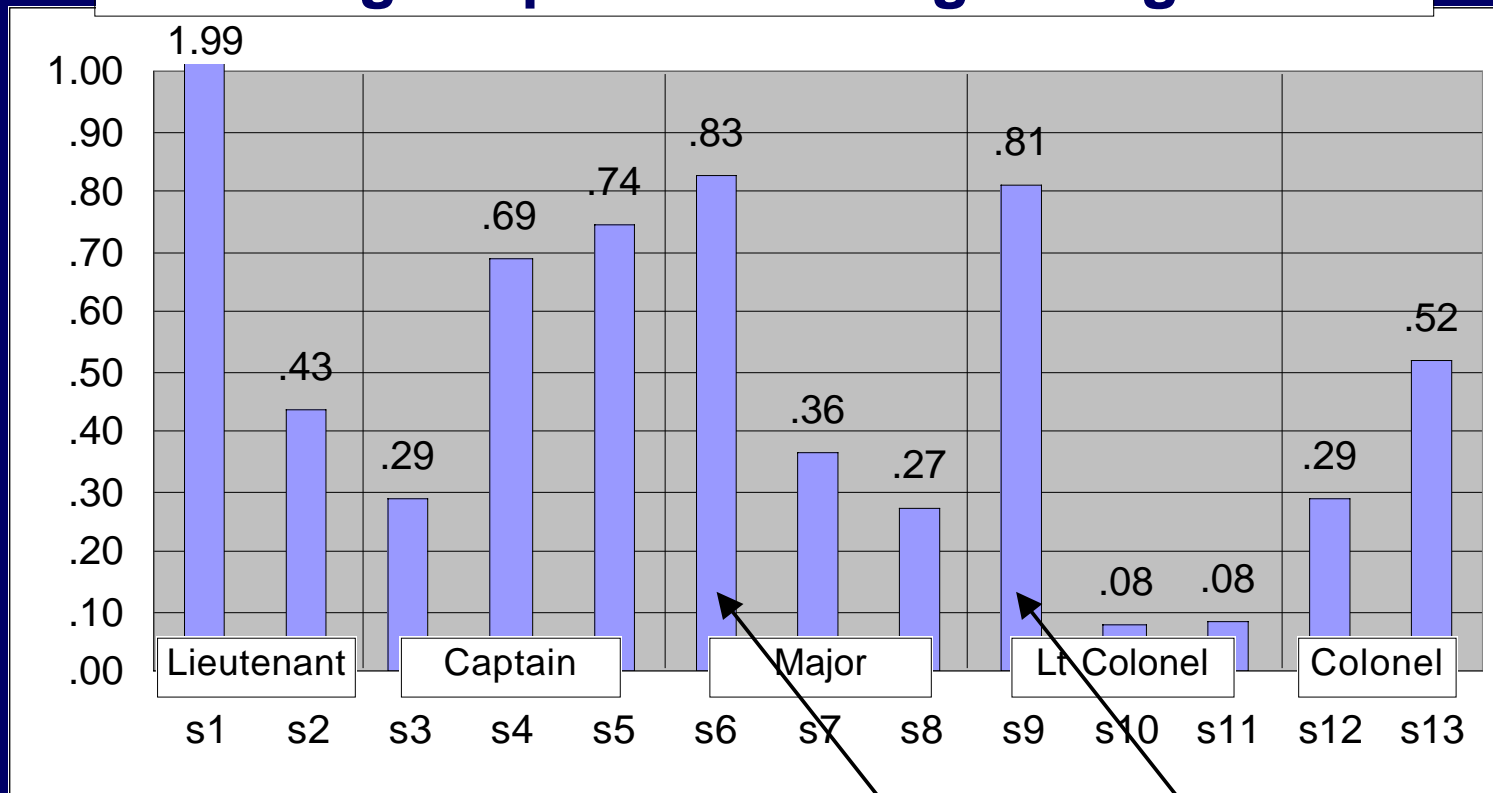# Incumbents Lacking One or More Experiences Needed for Their Jobs
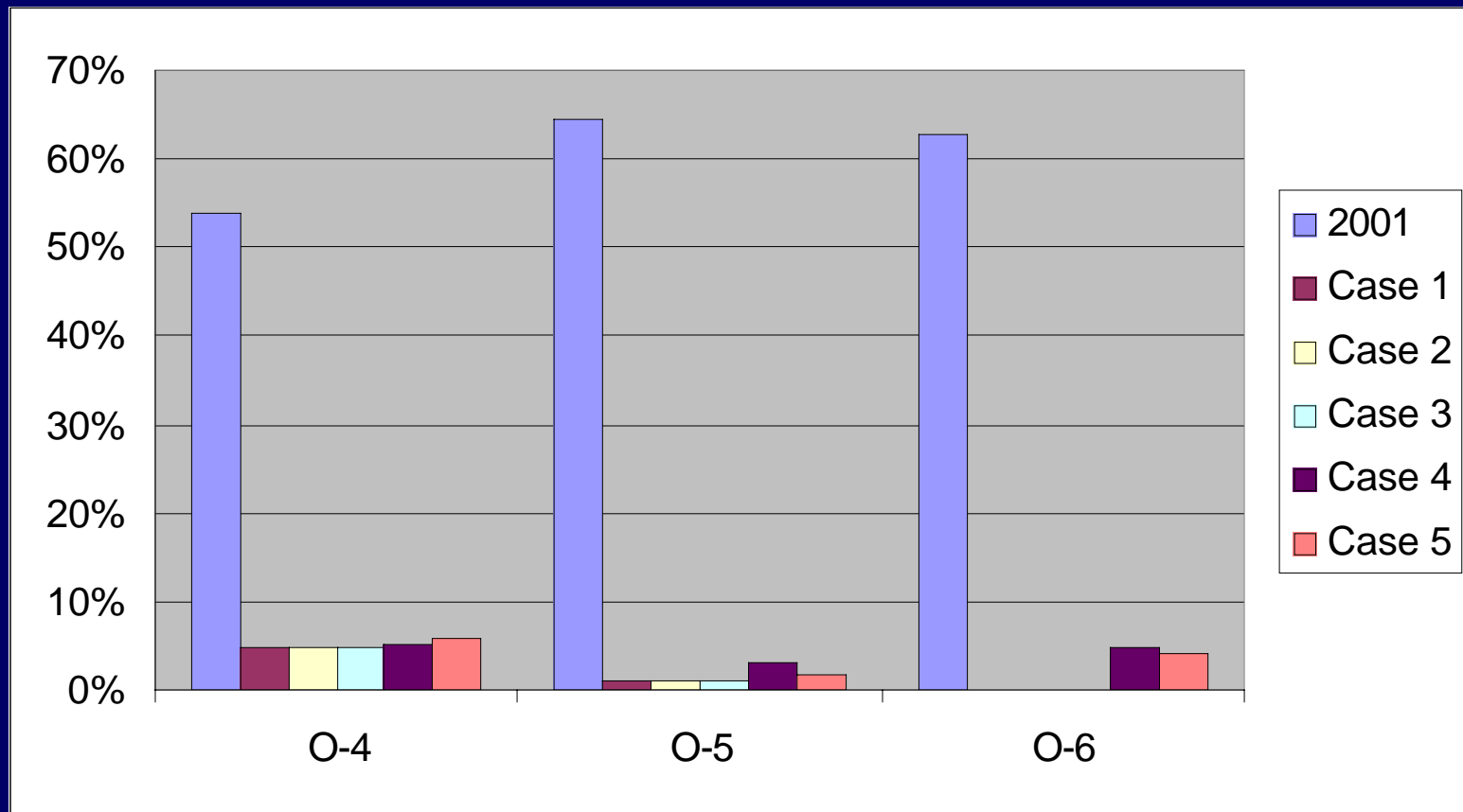
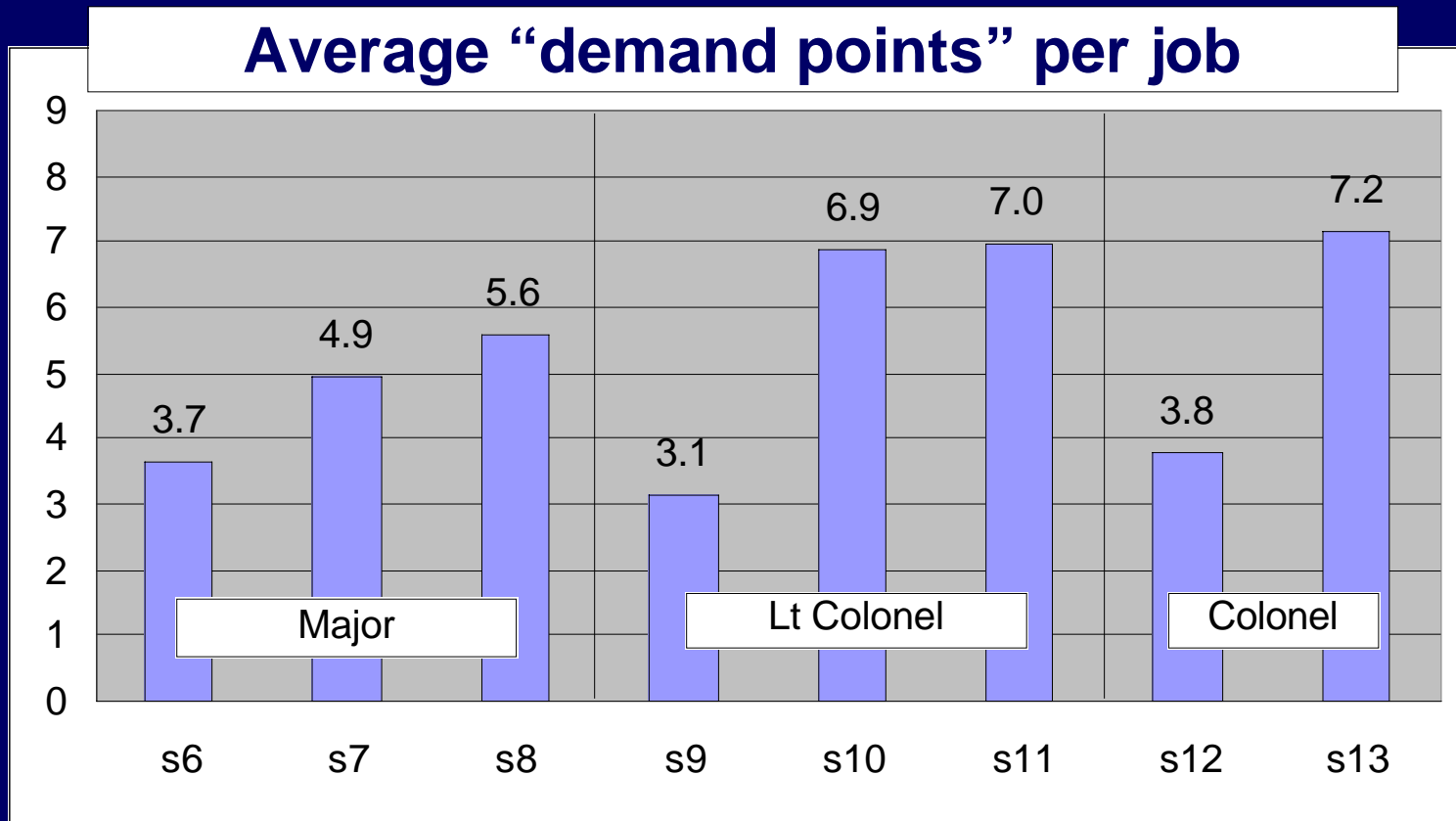# Optimized Patterns Would Increase Utilization of Officers' Experience
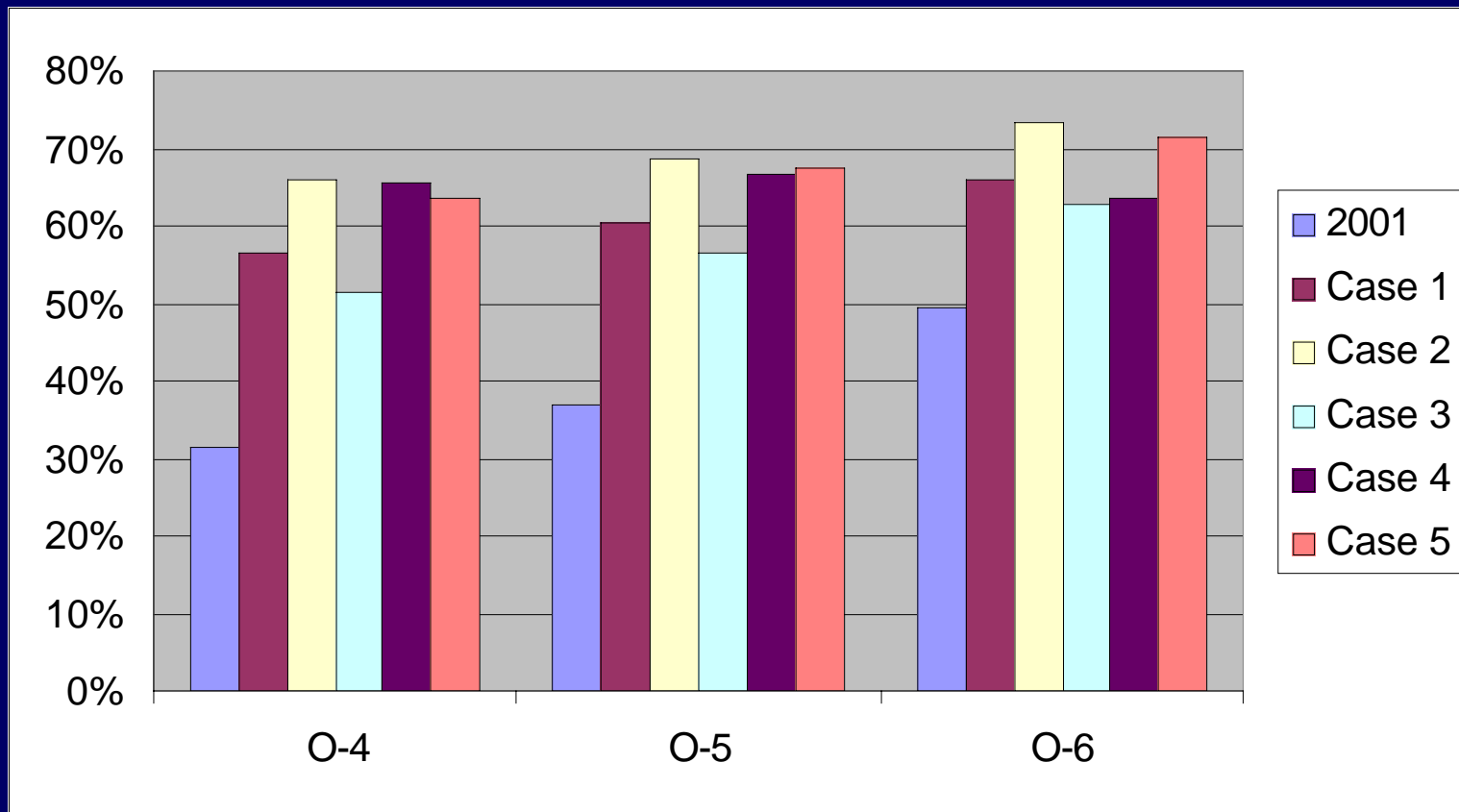
Optimization Exploits Preparation Opportunities (e.g., for Case 2)

Average experience categories gained

… especially in 1st jobs as Major and Lt Colonel

Optimization Saves More Demanding Jobs For Officers With More Time in Grade (e.g., for Case 2)

Average "demand points" per job

Chart data — Average "demand points" per job:

Category	Stage	Value
Major	s6	3.7
Major	s7	4.9
Major	s8	5.6
Lt Colonel	s9	3.1
Lt Colonel	s10	6.9
Lt Colonel	s11	7.0
Colonel	s12	3.8
Colonel	s13	7.2

… allowing further preparation

A Little About RAND

RAND Is an Independent, Non-Profit Research Institution

- ◆ Charter: To further and promote scientific, educational, and charitable purposes, all for the public welfare and security of the United States

- ◆ Mission: To help improve policy and decisionmaking through research and analysis

- ◆ Core values: Quality and objectivity

- ◆ Not a university and not a management consultant, but with the capabilities of both
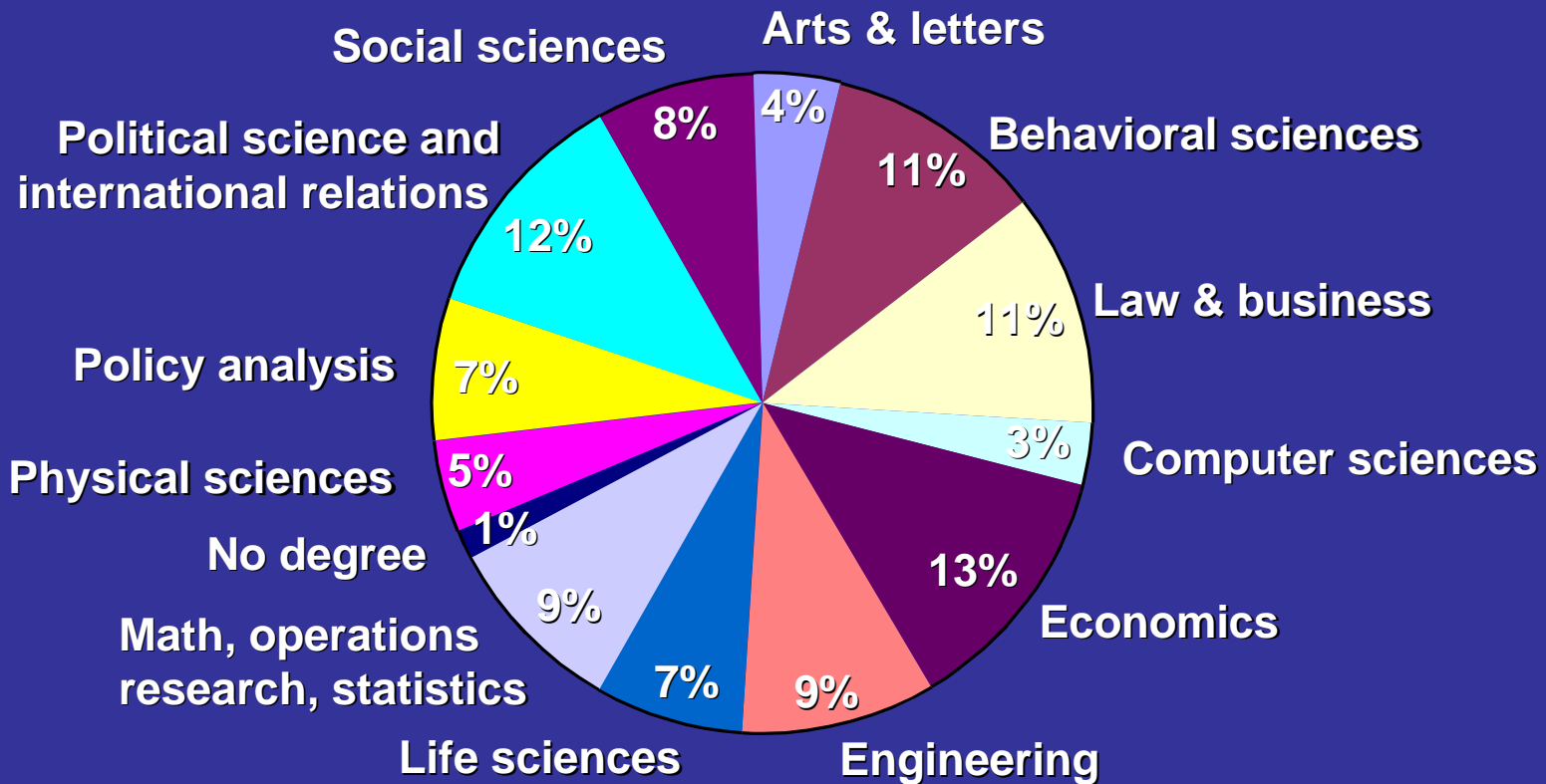
For more detail, see www.rand.org

Overview of RAND

- ◆ Approximately 1,200 employees
  - About 725 professional researchers
  - About 80-100 in MPT
- ◆ Offices in CA (hq), VA, PA, NY, CO, Europe (3)
- ◆ Extensive research support
  - Library and databases
  - Computing/programming
  - Human Subjects Protection Committee
  - Survey research group
  - Statistical consulting group
  - Publications services

- ◆ RAND Graduate School
- ◆ Military research fellows
  - 6-8 AF LtCols in SSS
  - Army, Navy, USMC
- ◆ USAF is largest client (19% of FY01's $161M)
- ◆ MPT work is in multiple units
  - Project AIR FORCE
  - Arroyo Center (Army)
  - National Defense Research Institute (OSD, jt agencies)
  - RAND Education
  - Labor and Population

Overview of RAND

Disciplines

Pie chart — Disciplines:
- Social sciences: 8%
- Arts & letters: 4%
- Behavioral sciences: 11%
- Law & business: 11%
- Computer sciences: 3%
- Economics: 13%
- Engineering: 9%
- Life sciences: 7%
- Math, operations research, statistics: 9%
- No degree: 1%
- Physical sciences: 5%
- Policy analysis: 7%
- Political science and international relations: 12%

Overview of RAND

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Degrees

Pie chart titled "Degrees":
- Doctorate 49%
- Masters 34%
- Bachelors 14%
- M.D. 2%
- Other 1%
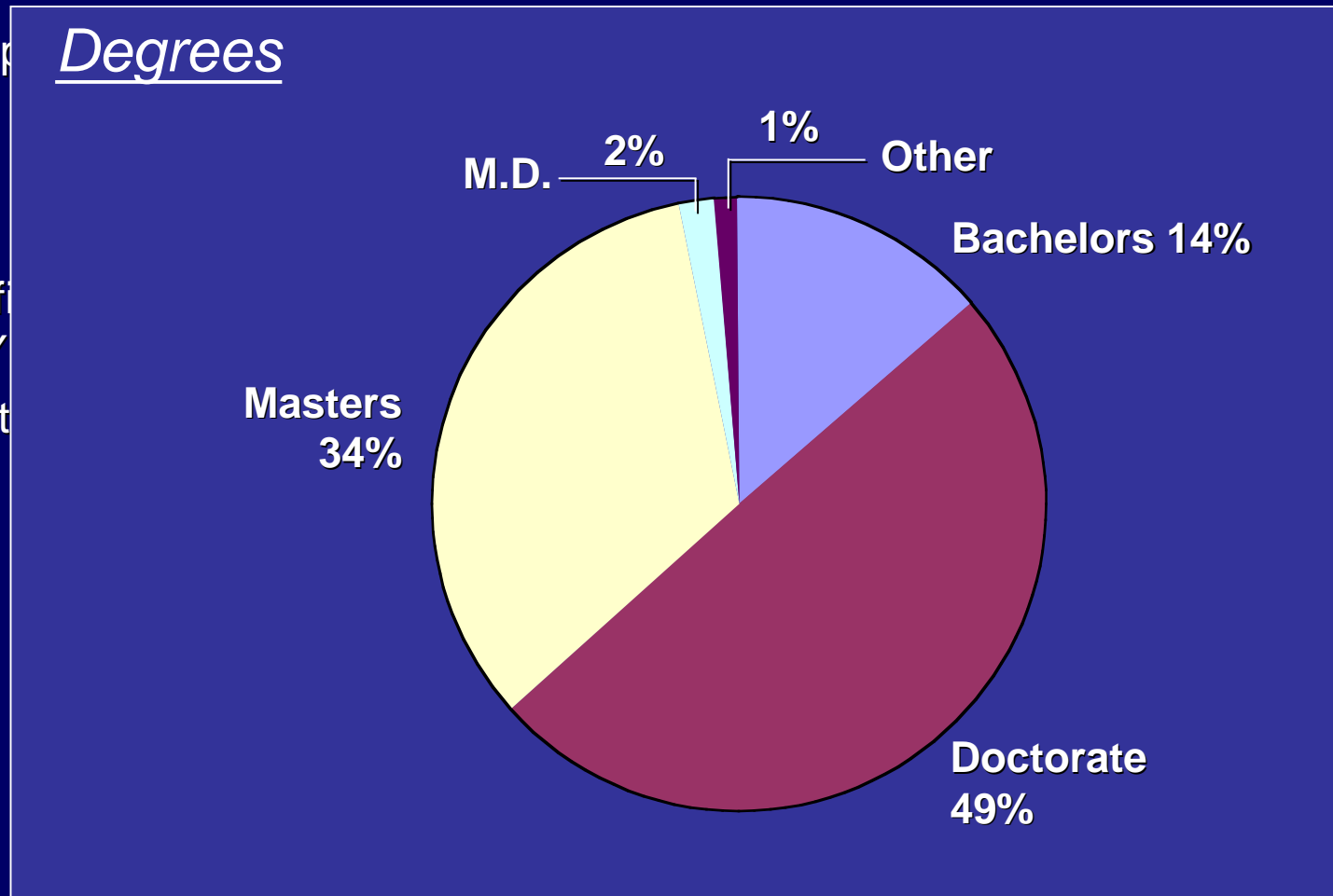
Overview of RAND

FY01 research clients

- Foundations ($10.3M)
- Individuals ($1M)
- U.S. Air Force ($30M)
- Private firms, associations, and international agencies $16.4M
- Colleges and universities ($4.4M)
- Other non-U.S. government agencies ($11.2M)
- Other federal agencies ($11.3M)
- Dept of Health & Human Services/National Institutes of Health ($24.3M)
- Other national security agencies ($1.4M)
- OSD and Joint Staff ($23.3M)
- U.S. Navy ($2.5M)
- U.S. Army ($24.4M)

Project AIR FORCE's Manpower, Personnel, and Training Program

- ◆ Reestablished in 1999 after 11-year hiatus
- ◆ Theme: In light of changing missions, technologies, demographics, economic conditions, … enhance USAF effectiveness and efficiency through
  - workforce and organizational design
  - policies that guide personnel and training development, support, and management

- ◆ So we're engaged across the board addressing
  - Manpower (spaces): numbers and mix of people needed
  - Personnel (faces): shaping and developing via recruiting, training, assgmt, retention, promotion, crossflow, separation
  - Training (preparing faces to match spaces): schoolhouse, OJT, unit training/exercises

Craig Moore, Director (Santa Monica, CA)
Al Robbert, Associate Director (Arlington, VA)